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## THE UNIVERSITY OF ALBERTA

BEGINNING EDUCATION STUDENTS' PERCEPTIONS OF THE HIGH SCHOOL STUDENT'S ROLE

by



DONAL DEISEACH

## A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

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# UNIVERSITY OF ALBERTA FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Beginning Education Students' Perceptions of the High School Student's Role," submitted by Donal Deiseach in partial fulfilment of the requirements for the degree of Master of Education.



#### ABSTRACT

The purpose of the study was to examine the perceptions or opinions of beginning education students as to the role of the high school student. A sample of 110 students at the University of Alberta, Edmonton, was chosen from fourteen sections of the Educational Administration 261 course in the Spring of 1969. Only those students who graduated from high school the previous year were included in the sample. Perceptions of the high school student's role were elicited with Bergen's The Role of the High School Student Questionnaire, a fifty-two item Likert type instrument. The items were normative statements of the high school student's behavior and attributes, and respondents were asked to indicate their relative agreement with them. Information on the respondent and the high school from which he graduated was gathered with an individual data instrument.

The problem, in operational terms, was stated in three parts:

(1) What factors could be used to describe the high school student's role? (2) What was the pattern of responses across these factors?

(3) What inter-category differences in mean scores for the factors associated with the high school student's role were discernible when the sample was divided on the basis of sex, teaching level aspired to, socioeconomic standing, type of organization in the school of graduation, type of school, the size of the high school, and its location?

Using factor analysis, six meaningful factors were derived by which to describe the high school student's role. These were named Student Conformity, Student Participation, Student Criticism, Student Challenge, Individual Quest, and Student Socializing. When the dis-



tributions of individual mean scores for the factors were examined, it was found that the sample agreed with the first five factors, and were undecided about the sixth. One-way analysis of variance was used to test for significant differences among the respondents. No significant differences were found when the students were compared by sex, teaching level, socio-economic standing, and type of organization in the school The following differences in perceptions were found on of graduation. the remaining variables: (1) students from private and separate schools agreed with Student Socializing more than students from public schools, (2) students from small high schools of ten or fewer teachers agreed with Student Socializing more than students from large high schools of more than thirty-one teachers, (3) students from city schools agreed with Student Criticism, Student Challenge, and Individual Quest more than students from town schools, and (4) students from rural schools agreed with Student Socializing more than students from city schools.

The general conclusion of the study was that first-year education students did not differ greatly in their perceptions of the high school student's role and that the differences observed reflected differences in the high schools they attended rather than differences among respondents.



## **ACKNOWLEDGEMENTS**

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### CHAPTER I

## THE DEVELOPMENT OF THE STUDY

## I. INTRODUCTION

Three phenomena in particular oblige Canadian school administrators to be concerned about the position of the high school student as a member of the school organization. The first is the dropout who fails to complete the program of public schooling. Scragg (1:1968:78), who recently investigated the problem of the dropout in Alberta, concluded that his findings indicate a projected annual dropout of 12,500 students, 5,000 of whom would not complete the first year of high school. The second is the potential dropout who would leave school before graduation if given the opportunity. Friesen (2:1967:299-310), in a study of two composite high schools in Ottawa, found an identifiable group of alienated students who reported their school experiences as unsatisfactory. Lastly, recent student activism is a cause of grave concern to educational administrators (3). Characterized by a boycott on classes, occupation of school buildings, mass demonstrations, and the formation of militant student organizations, student activism can effectively disrupt the process of public education. Student militancy is not confined to the United States; there is evidence that Canadian students are also prepared to hold demonstrations and to organize a students' reform movement (4). They seek a share in the administrative decisions in the school, and a greater measure of freedom and responsibility for learning as students. In short, they demand a new role for the high school student.



## II. PURPOSE OF THE STUDY

The purpose of this study was to examine the perceptions of first year education students as to what the role of the high school student ought to be.

A second purpose of the study was to discover whether there were any differences in perceptions among students classified by individual variables and certain characteristics of the high school from which they graduated.

### III. THE PROBLEM

A specific statement of the problem in operational terms is contained in the following three questions:

- 1. What factors are related to the perceptions held by firstyear education students of the high school student's role as measured,
  by Bergen's instrument, The Role of the High School Student?
- 2. What is the configuration of sample responses toward each of these factors?
- 3. What differences in perceptions of these factors are discernible when the sample is categorized by (a) characteristics of the respondent, sex, the level of teaching aspired to, and socio-economic background, and (b) characteristics of the high school he attended, organization, type of school, size in terms of the number of high school teachers, and location?

## IV. SIGNIFICANCE OF THE STUDY

The present study appears to be unique in that the search of the literature was not rewarded by the discovery of other studies in which



an attempt was made to analyze the high school student's role. With the prevailing climate of student unrest such an analysis is both timely and topical. Moreover, education students are a select sub-public in that they hope to enter the teaching profession, and it is assumed that their perceptions of the role of the high school student is of interest to educational administrators.

## V. DELIMITATIONS

The sample chosen for the study consists of those students in the Educational Administration 261 course who graduated from high school in the Summer of 1968, and entered the teacher education program at the University of Alberta, Edmonton, in the Fall of that year. Recency of high school experience was felt to be an important criterion by which to ensure that the sample was well-defined, and that it represented an identifiable social class.

## VI. DEFINITIONS OF TERMS

The terms in this study are intended to convey the meanings attributed to them by common usage.

Perception. A perception is regarded as an expressed observation or opinion. The perceptions of education students elicited by the questionnaire are simply their opinions of what the role of the high school student ought to be.

Role. A role is the socially accepted pattern of behavior of an individual in a certain position. In the terms of this study, the perceptions of education students denote their expectations for the behavior of a student in high school, and thus define his role as they see it.



Teaching Level. Teaching level aspired to by the education student refers to the level at which the respondent hopes to teach, whether in the junior-elementary, senior-elementary, junior-high, or senior-high school.

Socio-Economic Standing. This is an index of the respondent's socio-economic background given by his score on the Gough Home Index Scale in the individual data section of the questionnaire.

School Organization. The type of organization in the school from which the respondent graduated is the basis for differentiating among schools that are high schools only (grades 9-12), junior-senior high schools (grades 7-12), combined schools (grades 1-12), and colleges (grades 11, 12, and higher).

Type of School. Schools are classified as public, and non-public (separate and private).

<u>Size of School</u>. The size of the high school attended by a respondent is indicated by the number of high school teachers on staff.

Location of School. The location of the high school attended by the respondent is described as being in a rural environment, in a town, or in a city.

#### VII. ORGANIZATION OF THE THESIS

Chapter II, devoted to a review of pertinent literature, contains a discussion of the theoretical basis for the study and ideas from related readings on which the questionnaire items were based. Relevant research is considered also, and a statement of the hypotheses formulated for the study is presented.

Chapter III deals with the research methodology for the study,



and the statistical techniques employed in the analysis of the data.

The results of the data analysis are presented in Chapters IV and V. A summary of the study is given in the concluding chapter, together with a discussion of the findings and suggestions for further research.

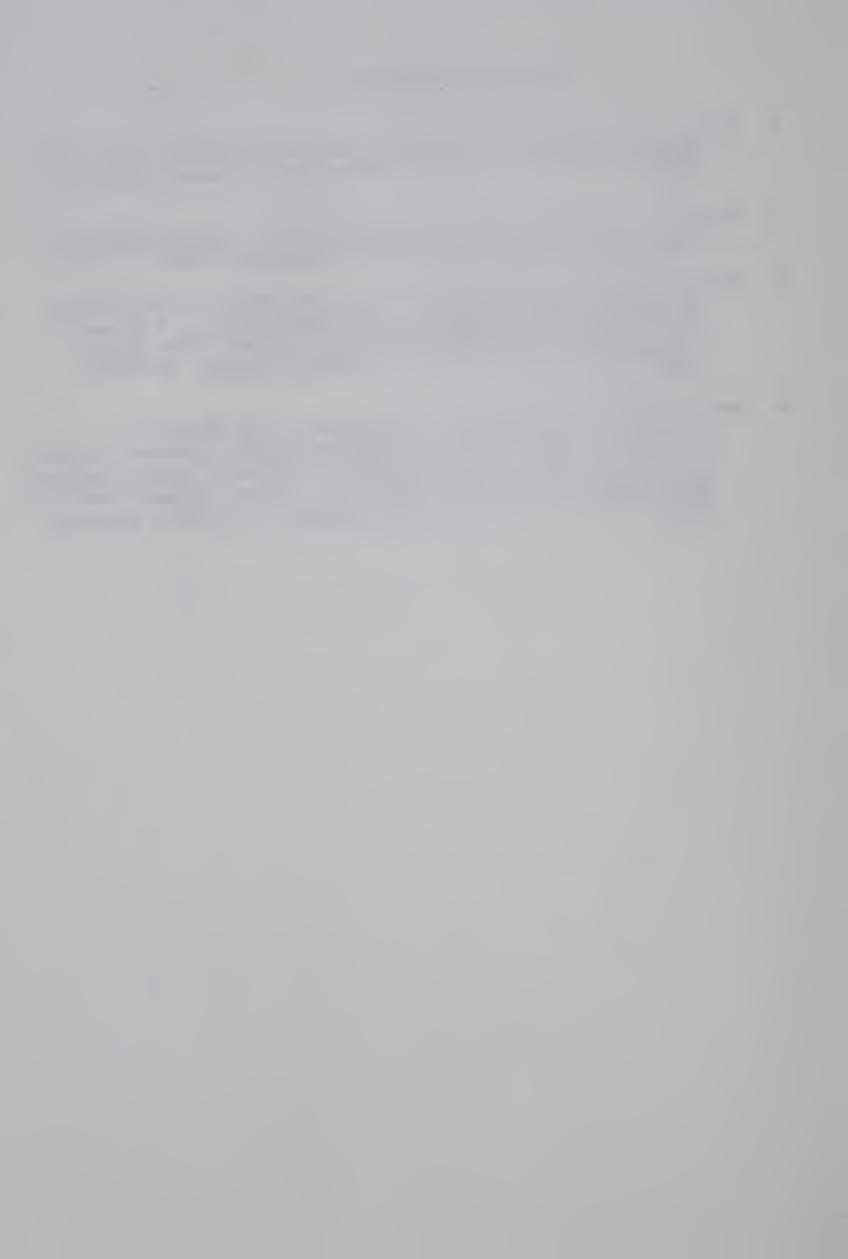


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#### CHAPTER II

#### RELATED LITERATURE

The problems to be investigated and the operational definitions of terms to be used in the study were described in the first chapter. The present chapter, divided into three parts, is devoted to an examination of the literature related to the main problem under investigation. In the first part, the theoretical basis for the study, an attempt is made to identify the dimensions of the high school student's role, and to indicate how the questionnaire items were derived. The second part deals with related research studies, in order to ally the study to existing research, and to demonstrate the reasons for the categories used in the statistical analysis. The final section contains a statement of hypotheses for the study.

#### I. THEORETICAL BASIS FOR THE STUDY

# Role Theory

A role was defined as the socially accepted pattern of behavior of an individual in a certain position (Supra, p.3). Society, and school officials in particular, expect the high school student to behave in a prescribed manner. These expectations for the student's behavior are the norms considered in the domain of role theory (1:1965:589-590). They differ from the actual behavior of the student which represents his role performance (1:1965:589).

Role theory explains the behavior of individuals in an organization in terms of the expectations associated with the positions they occupy (2:1963:5). An expectation is defined as "an evaluative standard



applied to the incumbent of a particular position" (3:1966:58). Thus, if a teacher holds that a student should attend all his classes regularly, he is specifying a standard of behavior to which he expects his pupils to comply, and by which he evaluates their conduct. Gross, Mason, and McEachern (3:1966:60) define a role as a set of expectations. Knowledge of all the expectations held by the teacher for the student's behavior would enable one to deduce his prescription for the latter's role.

One classification of expectations suggested (3:1966:63) for the purpose of role analysis is that of expectations for behavior and attributes; what incumbents should do and what characteristics they should have. The questionnaire in the present study contains normative statements referring to both behavior and attributes, and an individual's expectations for these are indicated by his responses.

## Categorization of Student Behavior and Attributes

On account of the variety and complexity of student behaviors and attributes, some basis of subdivision is necessary to structure the discussion of the questionnaire items. Argyris suggests four basic categories:

- 1. The demands made of the participant by the formal organization (includes job demand, policies, and practices).
- 2. The predispositions that the participants may wish to express while participating in the organization.
- 3. The informal activities that the employees create to adapt to the formal organization.
- 4. The administrator's reaction to the informal activities (4:1961:129)

The first category includes formal organizational variables: items discussed here refer to the operation of the school and the quality of member interaction under the headings Rules and Regulations and



Staff-Student Relationships. Personal attitudes and values fall in the second category; the items referred to deal with individual preferences under Curriculum. Items related to the third category, the informal organizational variables, are discussed under Peer-Group Relations. The items in the last category, dealing with administrative adaptations to informal influences in the school organization, are discussed under Student Participation in Decision Making.

## Rules and Regulations

Every human organization must have its rules if it is to operate in a rational manner. This is particularly true in the case of a school, because the pupils are all minors, and the administration is accountable for their whereabouts and safety at all times. But, as Friedenberg (5:1967:93) points out, high school students experience regulation only as control, not as protection; they know, for example, that the principal will uphold the teacher's view in any conflict with a student, regardless of the merits of the case. Students have no knowledge of the limits of a teacher's power to make rules. A teacher might refuse to admit a long-haired male student to his classroom even though the latter is well-groomed otherwise. Under such circumstances, rules lose their impartial character, and students are made subject to "rule by personality" rather than "rule by law".

The impression to be gained from the literature is that the number of rules in most high schools far exceeds that required for the operation of the school. Dress regulations and censorship of the student paper are two examples. A statement by the American Civil Liberties

Union (6:1968:9-20) points out that school regulations are a form of subordinate legislation and cannot abrogate rights, such as freedom of



expression, of assembly, of petition, and of conscience, and the right to due process and equal treatment under law, to which every citizen is entitled. Deviation from the opinions and standards desired by the faculty is not unlawful, since it is not ipso facto a danger to the organization itself.

Anderson propounds that when authority becomes embodied in a set of rules, some of the rules can be dysfunctional in terms of the organization's goals and objectives (7:1966:10). Goal displacement occurs when rules and regulations are treated as an end in themselves, rather than the means for achieving institutional goals (8:1968:24). Compulsory attendance in class without regard for individual needs, when a student might be more profitably employed in the library, is a case in point. Sometimes school rules are seen by students as a contradiction of the purpose of the school: where education for responsibility demands the freedom to make responsible choices, students are so beset by rules that the expression "restrictive climate of the school" is an understatement.

Grambs holds that the "whole pyramid of controlling devices" to which the high school student is subjected contains elements of adult hostility towards and fear of adolescents (9:1965:86). Brammer (10:1968: 13-21) is of the opinion that the rigid discipline of the average high school is one of the causes of student unrest.

The questionnaire items derived from this portion of the discussion emphasize both conformity to regulations and more freedom for the student. They are to be found under Rules and Regulations in Appendix A.

## Staff-Student Relations

The set of expectations related to the authority structure of the



school concern the student's behavior towards his instructors and other staff members. Traditionally, he is expected to be respectful to his superiors at all times, to defer to their pronouncements without question, and to address them by their proper titles. Institutional decorum does not facilitate mutual affection between the staff and the student body.

Bidwell (11:1965:973) noted the fundamental dichotomy between the teacher and the student role; the former is an employee and receives renumeration for his services while the latter is a recruit, who is obliged to attend school. Another author expressed the teacher-student authority relationship thus:

Teachers form a ruling elite in the classroom. Society has vested control and leadership of the classroom group with the teacher. This has removed the formal classroom groups about as far from democracy as one can get. There are very few working groups in society in which these autocratic conditions are legitimized to such a degree. Students have no control over the selection of leader, they have very limited recourse from the leadership, and they have no formal power over his tenure as leader (12:1967:59).

These ideas give rise to two of the questionnaire items: students should participate in the evaluation of the staff, and they should participate in the selection of staff members.

In his analysis of the school as a special type of service organization, Carlson (13:1964:262:276) points out that public schools fall into a category of institutions that have no control over client selection and where clients have no choice concerning their participation. Pupil control, therefore, plays a crucial role in the organizational life of public schools. Willower and Jones (14:1963: 107-109), in their study of staff interaction in a secondary school, found that pupil control was the "integrative theme" through which they



administrator behavior. This finding supports Greig's notion (15:1968: 27-28), that the present organizational structure of the high school tends to create a staff versus student relationship, to emphasize a wethou dichotomy which minimizes the teachers' influence over students.

Waller, in 1932, noted what he felt to be the basic dilemma for the teacher (11:1965:985): he must motivate students to learn and, at the same time, maintain discipline in the classroom. In other words, encouraging learning demands affective bonds between the teacher and students which are inimical to the demands of a bureaucratic office. In a study of high school teachers, Washbourne (16:1957:390-394) found support for Waller's thesis: a conflict arose in the teaching situation because the conception of the teacher's role stressed in their professional training differed from the role expectations of the bureaucracy in which they worked, because evaluation of the teachers emphasized pupil control. Anderson (17:1967:145) suggests that school administrators invest little authority in their instructional staff, teachers in turn have little authority to invest in students, and that, consequently, the school fails to draw upon the powerful societal norms of the adolescent subculture to reinforce achievement of the school's goals.

Maintaining reserve on the part of teachers can be interpreted by students as being impersonal and even unfriendly. In Friesen's study of the urban teenager (18:1969:32), a significant proportion of high school students (not the majority) believed that teachers were not interested in teenagers. A survey by FitzRandolph (19:1968:10-11), in which 73 high school students were asked to evaluate their schools, revealed that the most frequent criticism was directed at the neglect of teacher-pupil



relations, poor teachers, and the emphasis on passing examinations.

Brammer (10:1968:13-21) holds that adolescent students need warmth and friendship from teachers, and that improving teacher-student relations is an important consideration in dealing with student unrest.

Questionnaire items derived from this section of the discussion emphasize student conformity to the teacher's wishes and the student's right to challenge the teacher's statements: these can be found under "Staff-Student Relations" in Appendix A.

## Curriculum

The curriculum is the medium through which the purposes of the school and the expected outcomes of the process of education are achieved. But, learning is, in the last analysis, an individual affair, and the success of the high school program depends largely on the extent to which it caters for the individual student. Tyler (20:1968:1-12), in a recent article, emphasized the goal of individual self-realization as the most urgent purpose of the school in this modern age.

Educators have long recognized the problem of individual differences and have made some effort to overcome this in their instructional programs. Flanagan (21:1964:1-4) takes a more positive view.

Noting the variation in ability within single grades in the high school, he strongly recommends that individualized instruction be given in all secondary schools "to the fullest extent that facilities and staff time can be made available for it" (21:1964:6). Support for this viewpoint comes from the proponents of the concept of learning as a process of strategized inquiry, such as Downey (22:1965:67:67-75). Brown (23:1963: 206-209), in his program for the non-graded high school, introduced the idea of a Quest Phase, where students of above average ability are



given freedom for a period of each day to investigate in depth an area of knowledge which interests them. The Trump Plan (24:1967:26) also provides for a good deal of independent study and inquiry.

The idea that students should have the freedom to plan their own studies and to choose their own instructors comes out strongly in the literature on student unrest (25). One organizational model that allows for this is the free school, of which there are a few in Canada (26:1978: 26-27). The students in these schools initiate their own projects and choose their own advisors, volunteers from the local community. They pursue their studies independently and take part in informal seminarlike discussions. Participants in this type of enterprise claim that they are reacting against the public school system, its authoritarian teaching methods, dull content, and impersonal bureaucratic structure.

There is also a move towards granting more freedom and responsibility to the high school student within the public school system itself (27:1969:17). One high school in Saskatoon boasts the following features: an open climate where students may come and go from classes as studies demand; the right of the student to choose his own time-table and his own teachers; the semester system; a students' lounge; and only two rules, "Do your best" and "Don't hinder anybody else" (28:1969: 11-15).

The questionnaire items related to the ideas discussed in this section stress the student's application to his studies and freedom for individual inquiry: they are to be found under "Curriculum" in Appendix A.

# Peer-Group Relations

A number of studies in Canada and the United States have



documented the existence of an adolescent society in the high school (29). Its value climate pervades the informal groups that emerge in the student body. Group membership and peer status is important to the adolescent. Being accepted and liked by other students was described as the most important goal of high school life by the largest proportion of students in Friesen's study (18:1969:34). Further evidence from the same study suggests that the peer-group exerts much more influence on students' lives than teachers (18:1969:36).

Whenever a number of students come together for a common purpose, and begin to share norms, an informal group is formed within the school organization. It may support, oppose, or be completely indifferent toward the formal school organization. Supportive groups are useful to the school organization. Neutral groups reflect the existence of an unmet social need, and in this respect they too are useful. But when an informal group emerges in opposition to the formal organization, it must be seen as a device for counteracting the influence of the institution upon the individual; hence, it must be regarded as a threat to the formal organization (22:1965:138). The grave concern of school administrators is that the informal peer-group may espouse the cause of student activism.

There have been some attempts to explain the causes of student unrest (30), and its implications for society as a whole (31).

Papadopoulos (32:1968:33-35) notes that it is a world-wide phenomenon and that its most significant feature is that students have become aware of their new-found political power and the possibility of changing the larger system.

Questionnaire items related to these ideas stress student involve-



ment in peer-group activities and are listed under "Peer-Group Relations" in Appendix A.

# Student Participation in Decision-Making

Evolving strategies for student participation in the administration of the school and planning the curriculum program is thought to be the most promising method of channelling the student movement in a positive direction and overcoming student-institutional conflict (33:1969:96). Willis (34:1968:485) reports on some high schools in Ontario that have already set up patterns of communication and student involvement in making decisions that concern their role in the organization. Caliguri (35:1968:265-269) proposes that fertile innovations, such as granting students the right to appear directly before the school board with complaints, institutionalizing student participation in policy-making, or having student teachers teach on a part-time basis, are needed to harness student power. One cannot help thinking that some of the students' demands, that teachers and students should review courses together at the end of the school year and suggest new textbooks for the following term (36:1969:7) for example, deserve consideration.

The items corresponding to the ideas expressed here appear under "Student Participation in Decision-Making" in Appendix A.

#### II. RELATED RESEARCH

A second purpose of the study is to compare education students' perceptions of the high school student's role when the sample is divided on the basis of sex, preferred teaching level, socio-economic standing, and certain variables of the institution of graduation.



The use of the term perception in this study is analogous to the concept of attitude, defined by Thurstone as:

. . . the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specific topic. (37:1967:79).

Opinion is regarded by Thurstone as the verbal expression of attitudes (37:1967:79). In the study, therefore, the respondent's answers to the questionnaire items may be regarded as their perceptions or opinions of what the role of the high school student ought to be, and from these it may be inferred that they hold corresponding attitudes. Related research findings on inter-category attitudinal differences among education students reported in this section are felt to be an indication of possible differences among education students in their perception of the high school student's role.

# Male-Female Attitude Differences Among Education Students

In a study of teaching candidates at the University of California, Los Angeles, MacLean, Gowan, and Gowan (38:1955:669-677) found some attitudinal differences among the sexes. Males scored significantly higher on the theoretical, political, and economic dimensions of the Allport-Vernon-Lindzey Study of Values instrument, while females scored higher on the aesthetic, social, and religious orientation dimensions. Attitudes towards the role of the high school student may contain elements of all these predilections, however, and differences between the sexes would become less marked.

Ratsoy (39:1965:115-117) found a number of significant differences in attitudes between male and female education students on the six scales of his Omnibus Personality Inventory (OPI). Males scored significantly higher on theoretical orientation, level of occu-



pational aspiration, and professional orientation, while females scored higher on aestheticism only. One of the conclusions drawn was that the differences noted on the theoretical and aesthetic subscales could be a reflection of "broad culturally based sex differences that one would expect to find in any occupational group" (39:1965:116). While the study, in addition to the previous one, suggests that attitudinal differences between the sexes may exist, it is not clear that this disparity will be revealed in opinions of the high school student's role. Therefore, the null hypothesis is made, that there is no significiant difference between male and female education students' perceptions of the role of the high school student.

## Attitude Differences and Teaching Level

Getzels and Jackson (40:1963:531) comment on the advisability of taking teaching level aspired to into account in research on the attitudes of student teachers:

. . . Researchers . . . often indiscriminately lump students in education without regard to their teaching objectives and pool the obtained data thus averaging out differences in interests that might exist (40:1963:531).

Ratsoy (39:1965:129-134) found significant differences between teaching candidates classified by curriculum major in the elementary, secondary and vocational teaching routes on four of the OPI scales.

Vocational student teachers scored higher than secondary and elementary candidates, in that order, on the theoretical interest, theoretical orientation, and professional organization scales. This order was reversed for the aesthetic scale on which elementary candidates scored highest.

Further evidence of differences among education students



classified by teaching level aspired to is revealed in a study by Hoy (41:1967:153-155) of the attitudes of student teachers towards pupil control. He found that student teachers manifested a more custodial pupil control ideology after teaching practice than before, and that the greater change took place in the attitudes of secondary over elementary candidates in this direction.

Apparently, teaching level aspired to is a meaningful classification on which to compare the attitudes of education students. The
hypothesis is made that there is no significant difference in the perceptions of education students bound for teaching positions at elementary
and secondary levels towards the role of the high school student.

# Attitude Differences and Socio-Economic Standing

Different strata of society have their own peculiar value climates because, as Charters states:

. . . Personal interaction tends to be limited between members of the different classes but relatively intense within class strata, circumstance which favors the emergence of unique cultural patterns and value systems within each class (42:1963:730).

On this premise, a hypothesis could be made that student teachers with different social backgrounds differ in their attitudes towards the high school student's role.

Ratsoy (39:1965:186) found differences between socio-economic levels on four subscales of the OPI. These scales, however, appeared to discriminate only between a small group of high status students on the one hand and the large group of average and low socio-economic level students on the other: they did not discriminate between the average and low level students. For this study, it was hypothesized that no significant difference in perceptions of the high school student's role



existed among education students with different social backgrounds.

# Attitude Differences and Selected High School Variables

An assumption is made here that there is some relationship between the type of school in which the student teachers took their grade XII and their attitudes towards the role of the high school student. Schools differ in a number of ways: in size, program offered, the nature of the school district to which the school belongs, whether public or separate, and the location of the school, whether rural or urban. Students who come from different schools may, conceivably, hold different attitudes towards the high school student's role.

MacKay (43:1964:87-88) found that schools differ in the extent to which they possess certain bureaucratic characteristics, and that this can be explained by differences in staff size. He also found a significant relationship between bureaucratization of the school and the staff's rating of its effectiveness: bureaucratization was perceived as dysfunctional in terms of pupil achievement (43:1964:100).

Mansfield (44:1967:224) reported highly significant differences in the degree of bureaucratization of the schools in his study, but he found that this was most easily explained by the number of pupils rather than the size of the school staff. He also reported significant differences in the degree of bureaucratization of three urban school systems: schools in the larger school district were more bureaucratized than the schools in the two smaller districts (44:1967:225).

McKague (45:1968:131) found that schools in his study also differed in their degree of bureaucratization, but his analysis revealed that this differentiation was not merely a function of school size; the



differences were attributed to internal factors, such as the organizational climate, which were independent of school size. He also discovered that principals in the highly bureaucratic schools were more concerned with the efficient operation of the school than with staff satisfaction. This suggests that differences among schools may be explained by the concept of organizational climate which is interpreted by Miklos as follows:

. . . the climate of an organization refers to the characteristics of certain social relationships which exist among the members of an organization and between the total organization and its participants. To the extent that it appears to characterize the state of such internal processes as attitudes, interactions, and other behaviors of members of the organization, it may be said to refer to the "personality" of the organization (46:1965:25).

Andrews (47:1965:4-20), using Halpin and Croft's Organizational Climate Description Questionnaire (OCDQ), found that schools differ significantly in organizational climates when they are classified by organizational types, elementary, elementary-junior high, secondary only, and combined (gradesI-XII).

On the basis of these considerations, it was hypothesized that there would be no significant difference in perceptions of the high school student's role among education students classified by: (1) the type of organization in their high school of graduation, (2) the nature of the school, public or separate, (3) the size of the school in terms of the number of high school teachers, and (4) the location of the school.

### III. HYPOTHESES

Seven hypotheses were formulated for the study:

Hypothesis 1. There is no significant difference in mean scores for the factors associated with the high school student's role between male and female first-year education students.



Hypothesis 2. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students with different teaching-level aspirations.

Hypothesis 3. There is no significant difference in mean scores for the factors associated with the high school students' role among first-year education students with different socio-economic backgrounds.

Hypothesis 4. There is no significant difference in mean scores for the factors associated with the high school students' role among first-year education students from schools differing in organizational type.

Hypothesis 5. There is no significant difference in mean scores for the factors associated with the high school students' role among first-year education students from public and non-public schools.

Hypothesis 6. There is no significant difference in mean scores for the factors associated with the high school students' role among first-year education students from high schools of different sizes.

Hypothesis 7. There is no significant difference in mean scores for the factors associated with the high school students' role among first-year education students from high schools of different location.



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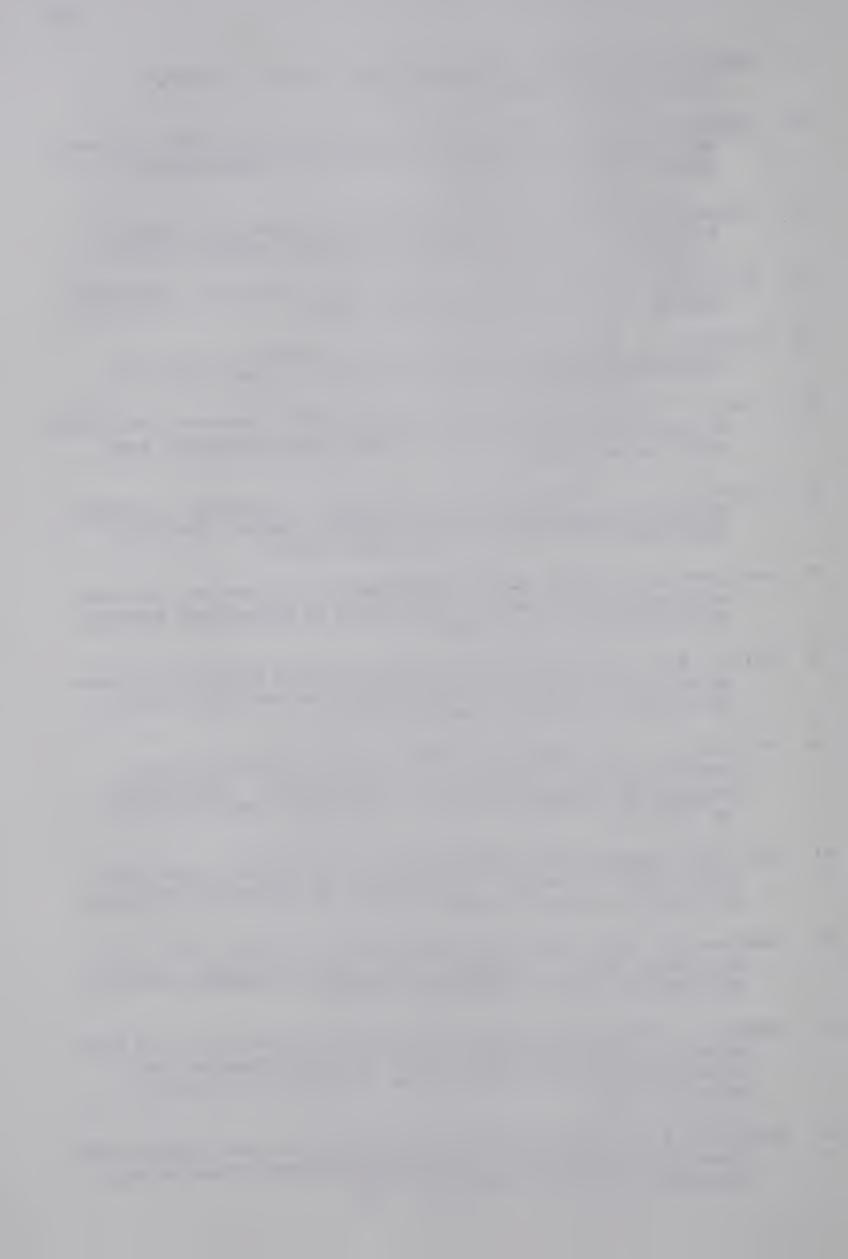


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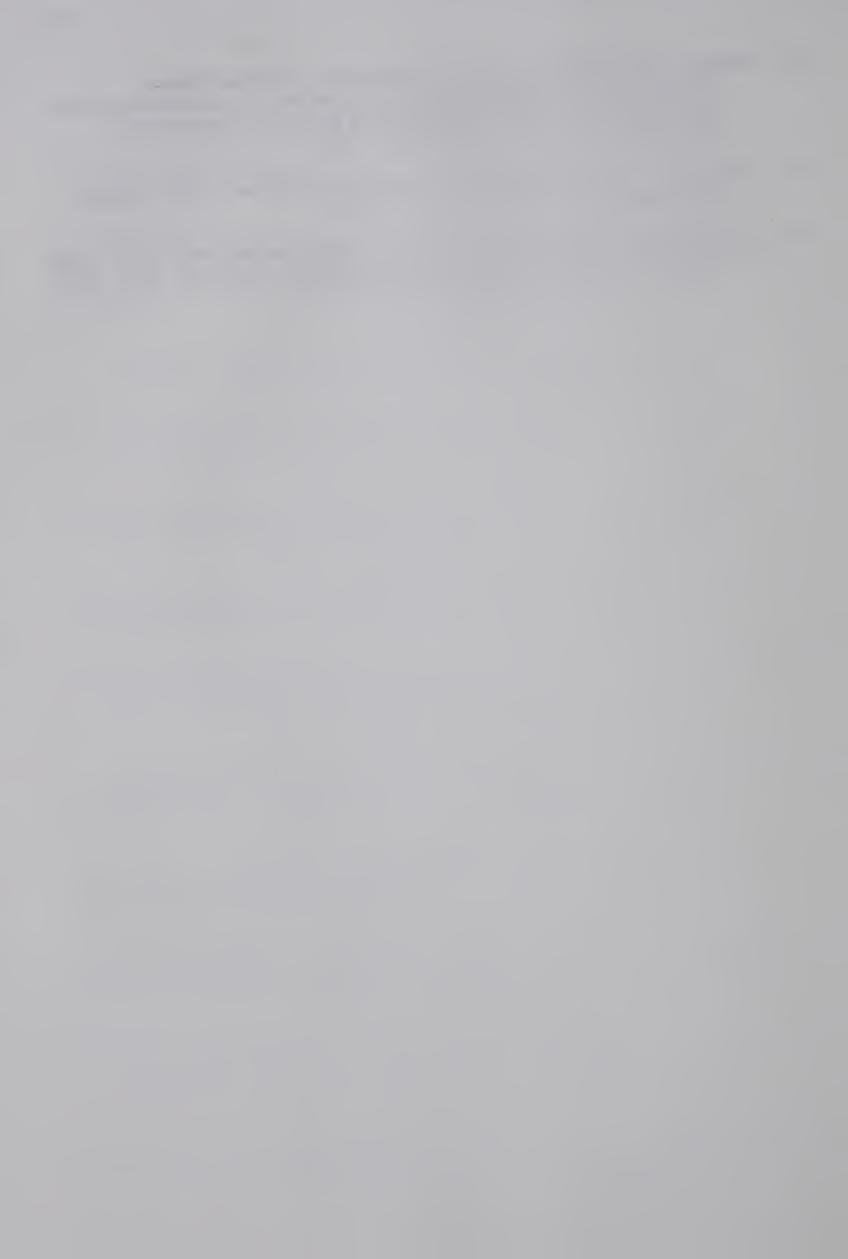
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#### CHAPTER III

### RESEARCH DESIGN

#### I. INSTRUMENTATION

Two instruments were employed in the study, Bergen's attitude questionnaire\* entitled The Role of the High School Student, and an individual data instrument (see Appendix B).

## The Role of the High School Student Questionnaire

This was an attitude instrument of the Likert type consisting of fifty-two items. Respondents were asked to indicate their opinion on each item by circling the appropriate number on a seven point scale of an agree very strongly to disagree very strongly continuum. The items, developed from related readings and experience and listed in Appendix A, were arranged in random order on the questionnaire. They dealt with the student's behavior in relation to the rules and regulations of the school, the staff, the curriculum, the peer-group, and student participation in decision-making. Each item was a normative statement prefaced by the phrase "You think or feel that the high school student ought . . . ".

The following is an example:

You think or feel that the high school student ought . . .

to take detailed notes in class 1 2 3 4 5 6 7

<sup>&</sup>quot;This instrument was compiled initially by Bergen, in collaboration with Friesen and Bumbarger, at the University of Alberta, Edmonton, in October 1968. The revised version, used in this study, was the work of Bergen and Deiseach, March 1969.



The response key, given as:

- 1. agree very strongly
- 2. agree strongly
- 3. agree somewhat
- 4. undecided
- 5. disagree somewhat
- 6. disagree strongly
- 7. disagree very strongly

was shown on each page of the questionnaire and indicated the measure of agreement corresponding to each number. Respondents were thus in a position to make meaningful responses to every item.

Reliability of the instrument. A pilot study was conducted in the Fall of 1968 using the original instrument, which had fifty-five items, with thirty-five first-year education students. Analysis of their responses led to the rejection of a number of the items and the addition of eight new items, making the present total of fifty-two items. The Kuder-Richardson (K-R 20) formula was used to measure the scalability of the items on both forms of the questionnaire (1:1966:379-380). Item analysis (2) of the responses for the pilot study yielded a K-R 20 reliability coefficient of 0.52, and for the present study a K-R 20 coefficient of 0.69. This was regarded as a substantial improvement in the reliability of the instrument.

### Individual Data Instrument

General information on the respondent's background was solicited through the individual data instrument in the following categories: (1) sex, (2) age, (3) teaching level aspired to, (4) socio-economic standing as measured by the Gough Home Index, (5) organizational structure of school where grade XII was taken, (6) type of school, public or non-public, (7) size of the school in terms of number of high school teachers, and (8) location of the school. The distribution



of responses in each category is displayed in Table I. A hypothesis was not formulated for the second category because of the small age spread, which was to be expected since the sample was limited to those students who graduated from high school the previous year.

Gough Home Index. The Gough Home Index Scale (3:1949:52-56), modified for Canadian use by Elley (4:1961:55-57), has already been used in a number of studies at the University of Alberta, Edmonton (5). It relies heavily on the acquisition of material goods as an indicator of social status. Hernandez comments on the use of social stratification as a research tool:

Placing individuals in a social class by means of an instrument, utilizing weighted values, is aimed at identifying groups which share certain characteristics as groups and was never meant to apply to individuals (6:1963:322).

The concept of social standing is used in this study to identify groups of student teachers with similar economic backgrounds on the assumption that they share certain values and attitudes.

### II. RESEARCH METHODOLOGY

# The Sample

The respondents in the study were first-year education students attending the University of Alberta, Edmonton, during the Winter Session, 1968-69. A random sample of 110 students who graduated from high school in the previous Summer was chosen from fourteen sections of the Educational Administration 261 course. Since this number represented approximately twenty-five per cent of the population of education students who attended high school the previous year, and was greater than that required to ensure a distribution of responses approaching the normal distribution (1:1966:153), the sample was considered to be adequately representative

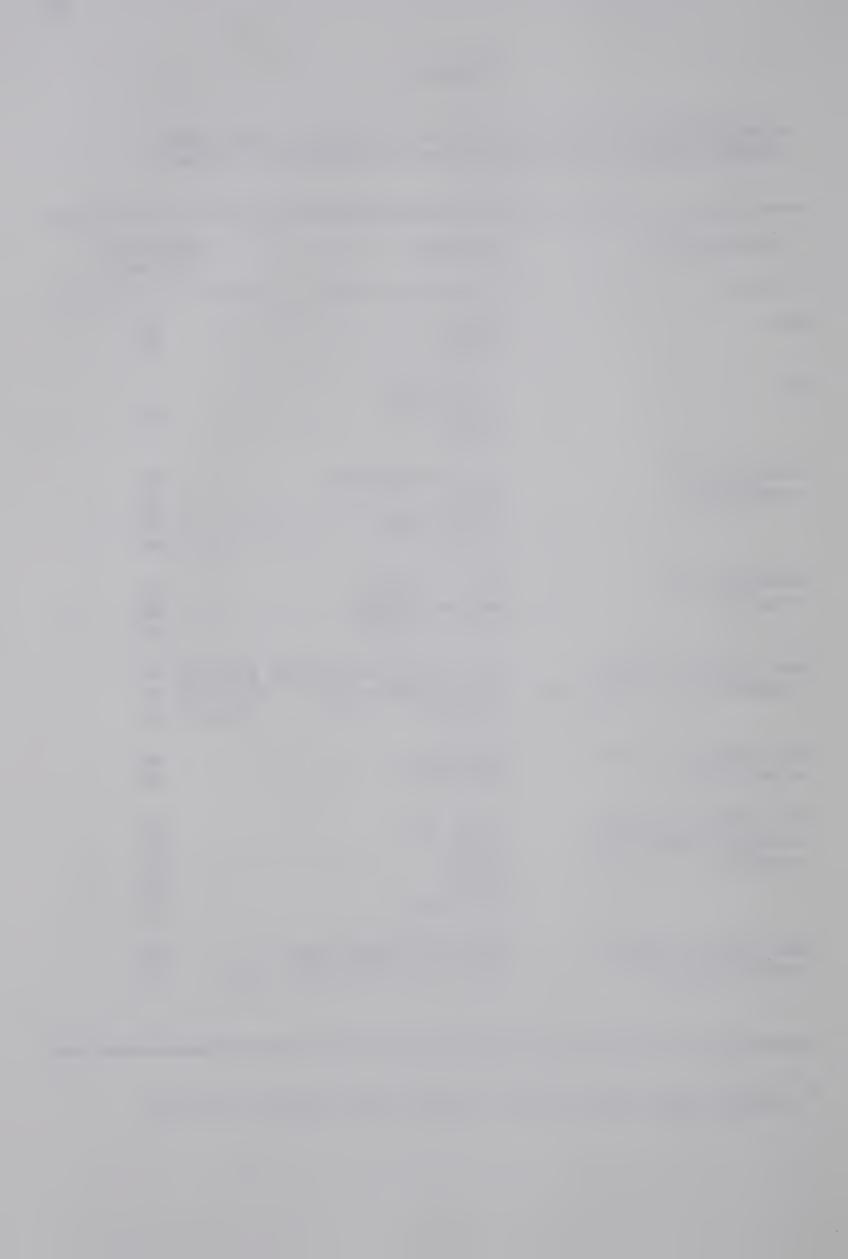


DISTRIBUTION OF RESPONSES BY SEX, AGE, TEACHING LEVEL, SOCIO-ECONOMIC STANDING, AND VARIABLES OF THE HIGH SCHOOL ATTENDED

TABLE I

Classification	Category	umber of esponses
Sex	Male	34
	Female	76
Age	16-17 years	4
	18-19 "	99
	20-21 "	7
Teaching level	Lower elementary	22
aspired to	Upper "	22
	Junior high	24 .
	Senior "	42
Socio-economic	Low (0-9)	27
standing	Medium (10-15)	62
	High (16-20)	21
High school attended:	High school or college (IX-XII	[) 72
organizational structure	Junior-senior high (VII-XII	
O .	Combined (I-XII	18
High school attended:	Public	80
school type	Non-public	30
Jeneor eype		
High school attended:	10 or fewer	25
number of high school	11-20	28
teachers	21-30	20
	31-50	13
	51 or more	24
High school attended:	Rural (includes town)	61
school location	Urban (includes small city)	49

<sup>\*</sup> includes eight Roman Catholic public school district students.



and suitable for the purpose of the study.

## Data Collection

The instruments were administered to the students during the regular lecture periods by their instructors.

### Assumptions

The study was based on the following assumptions:

- 1. The size of the sample was adequate for the purpose of the study.
- 2. The instruments used were suitable for the study.
- 3. The data collection procedures did not affect the validity of the responses.
- 4. The questionnaire items were understood by the respondents.
- 5. The responses constituted an honest expression of opinion.

# Limitations

Various limitations on the usefulness of the study must be recognized. Checking the accuracy of the information obtained is practically impossible. Selltiz (7:1959:242) notes the danger of respondents misinterpreting the questionnaire items. The study is specific in time and circumstance, and the results are not readily generalizable. Finally, the study does not include students from other faculties in the University: the pattern of perceptions may be characteristic of education students only.

# Data Processing

The responses were transferred to data sheets and submitted to Educational Research Services at the University for key-punching onto IBM cards. Each card contained the responses from both instruments and



a code number for the respondent. Subsequent data processing was carried out on the University computer by using these cards with computer programs loaned by Educational Research Services.

## Factor Analysis

The purpose of factor analysis as a research tool is to resolve a large number of variables into a small number of categories or factors in order to obtain a parsimonious description of them (8:1967:4). It was employed in this study to condense the fifty-two variables on the attitude questionnaire to a few factors by which to describe the role of the high school student.

Criteria for number of factors. Two criteria were used to decide the appropriate number of factors. The first criterion was to choose that number of factors beyond which a break occurred in the eigenvalue curve, an approach postulated by Horn (9:1965:179-186) and Linn (10:1968: 37-71). Linn stated that "when there is a clear break in the eigenvalue curve, there is little question about the correct number of factors" (10:1968:69). The second criterion was introduced when attempting to name the factors: the largest number of factors that lent themselves to a meaningful interpretation was chosen.

Measurement of agreement with a factor. Each factor consisted of a number of items. Proceeding on the assumption that these items were additive, the numbers circled by a respondent on each were summed to give a total summated score for the individual on a factor. When items loaded negatively, the responses were reflected by substituting the complement of the number and eight. Low total scores indicate agreement with the set of student behaviors in a factor and high total scores indicate disagreement. Mean scores, calculated by dividing the



total summated score on a factor by the number of items in the factor, show the degree of an individual's agreement with the factor on a one to seven scale.

# One-Way Analysis of Variance

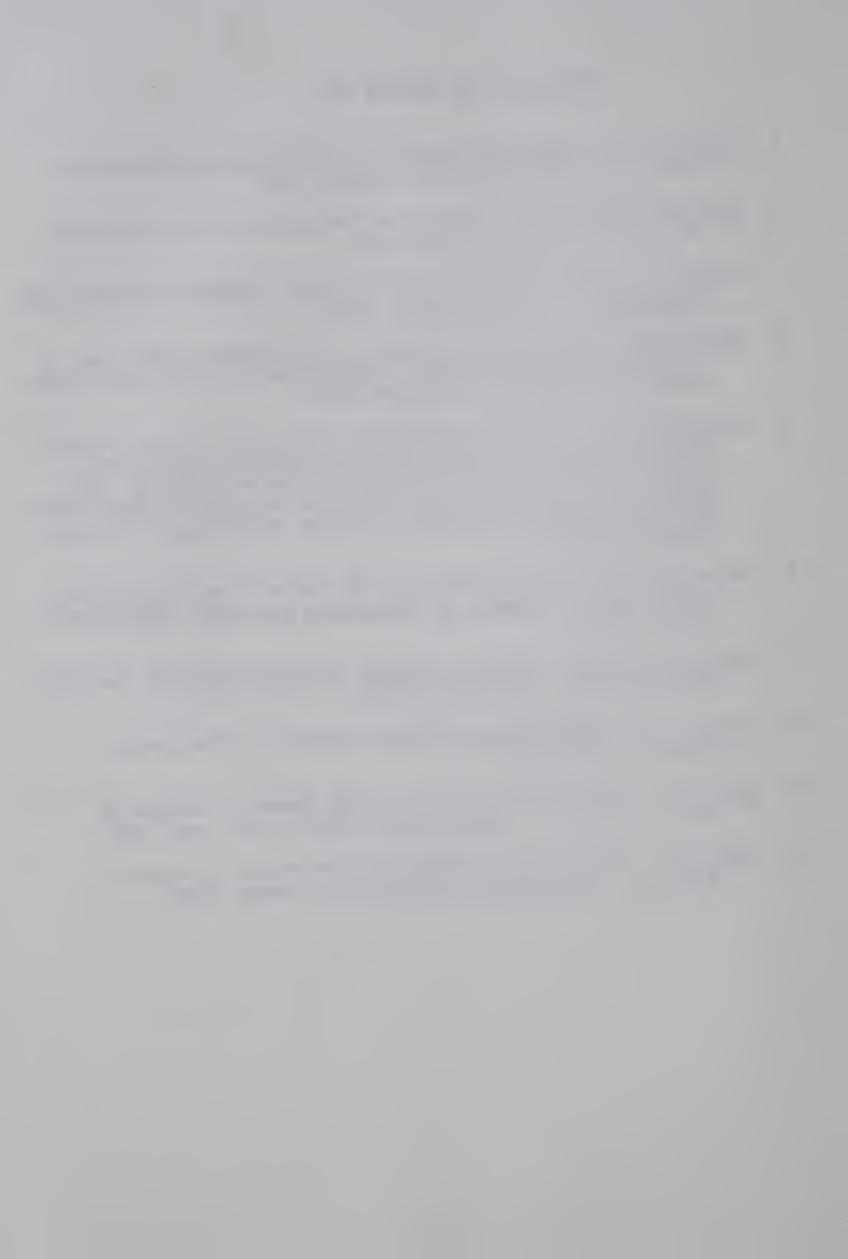
The one-way analysis of variance technique was used to test the hypotheses formulated for the study (1:1966:281-299). In order to satisfy the assumptions of normalcy of distribution and homogeneity of variance on which analysis of variance is based, a transformation was carried out on these scores as suggested by Ferguson (1:1966:262), by normalizing them to a mean of fifty and a standard deviation of ten.

Mean normalized scores were calculated for the categories to be compared in each classification, and F ratios and probabilities were computed. The 0.05 level of probability was regarded as significant enough to infer a difference in perceptions between categories. When more than three categories were compared, the Scheffé multiple comparison of means test was applied (1:1966:296-297). This test is considered to be so rigorous that a probability of 0.1 is accepted as indicating a significant difference.



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#### CHAPTER IV

FACTORS ASSOCIATED WITH THE ROLE OF THE HIGH SCHOOL STUDENT

### Number of Factors

The first criterion used to decide the appropriate number of factors for describing the role of the high school student was to choose that number at which a break occurred in the eigenvalue curve (Supra, p. 32). Inspection of the graph of the eigenvalues plotted against the number of factors, shown in Figure I, revealed a clear break after eight factors. The contributions of the fourteen principal factors to the description of the data are given in Table II:eigenvalues fall below unity for any number of factors greater than fourteen.

The second criterion used was to choose the largest number of factors, to a maximum of eight, that could be interpreted sensibly. In order to label the eight factors, the items in each were written down in sequence of decreasing factor loadings and examined. This process was continued with successively lower numbers of factors, and, in consequence, it was decided that a set of six factors lent themselves to the most meaningful interpretation.

### Six Factor Solution

Kaiser's varimax method (1:1967:301-308) was used in the derivation of factors in all cases. The advantage of the varimax method is that it places emphasis on simplifying the columns, or factors, of the factor matrix, rather than the rows, or variables. This has the effect of precluding a general factor by the simplicity constraint on each column.



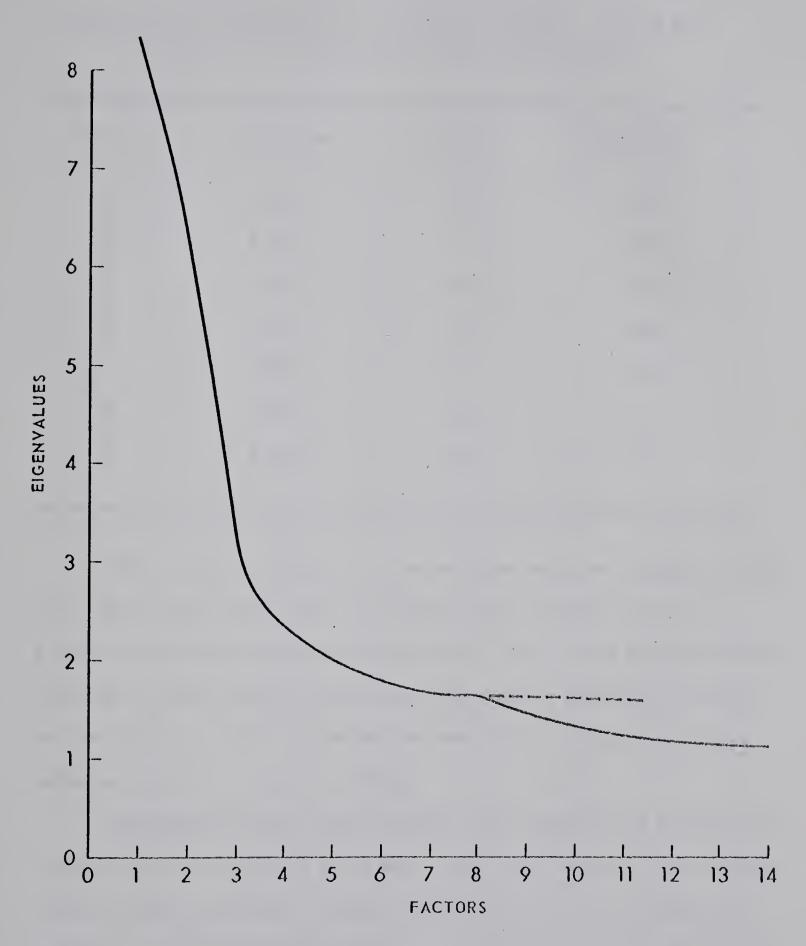


FIGURE 1:

GRAPH OF EIGENVALUES ILLUSTRATING BREAK IN CURVE AFTER EIGHT FACTORS



TABLE II

CONTRIBUTIONS (EIGENVALUES) OF FOURTEEN PRINCIPAL FACTORS FOR THE ROLE OF THE HIGH SCHOOL STUDENT QUESTIONNAIRE

Factor	Eigenvalue	Factor	Eigenvalue
1	8.335	. 8	1.676
2	6.418	9	1.508
3	3.327	10	1.374
4	2.373	_ 11	1.308
5	2.022	12	1.218
6	1.848	13	1.175
7	1.712	14	1.112

The six factor solution on the varimax rotation is given in Table III. Only those items with an absolute factor loading of 0.3 or greater were used to describe each factor. Many items had significant loadings on more than one factor; all items had a significant loading on some factor. These six factors accounted for approximately forty-seven per cent of the total variance.

Accounting for the total variance. The variance is a measure of the variation in responses which makes use of the squares of deviations from the mean (2:1966:64). Factor analysis, since it is a means of providing a parsimonious description of data, does not account for all

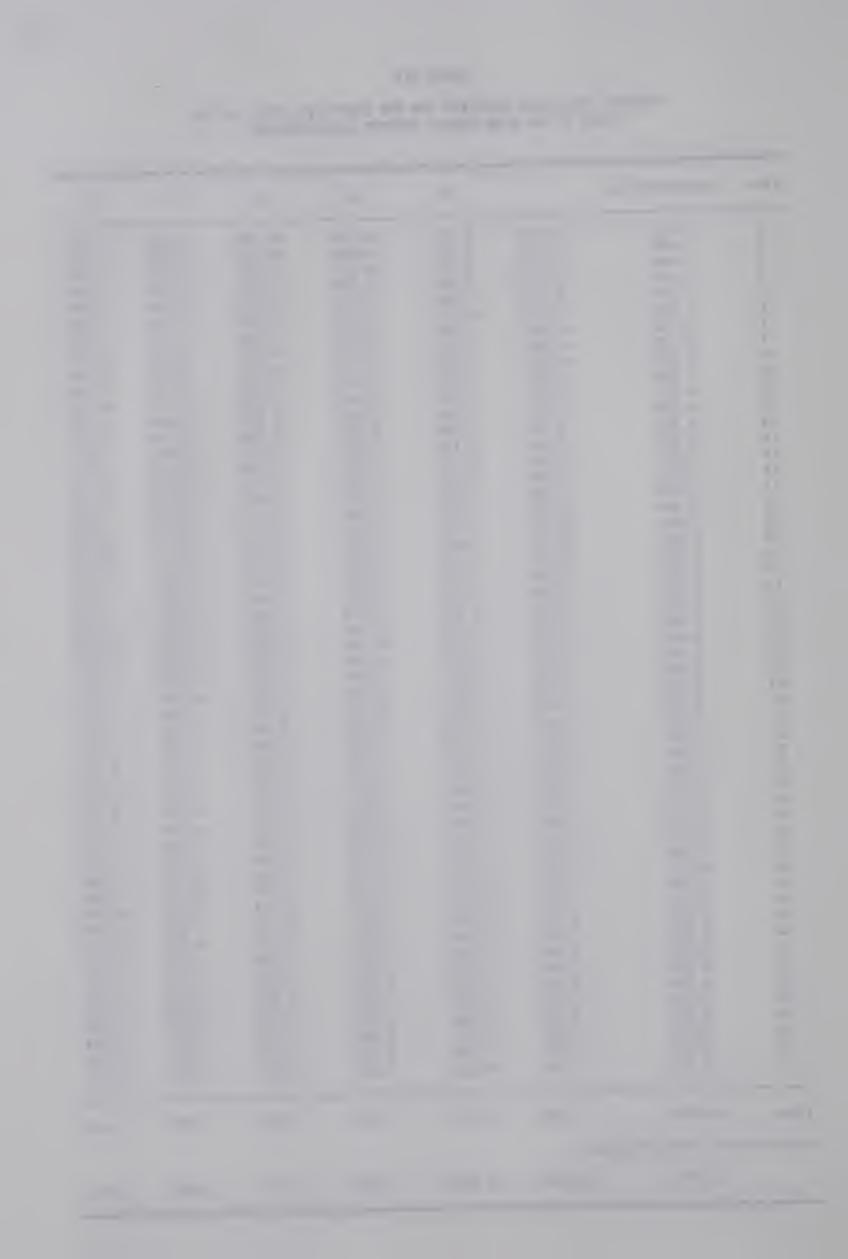
<sup>\*</sup> A low factor loading criterion was chosen so that the interpretation of each factor would be based on a large number of items.



TABLE III

VARIMAX SIX-FACTOR SOLUTION FOR THE FIFTY-TWO ITEMS ON THE ROLE OF THE HIGH SCHOOL STUDENT QUESTIONNAIRE

2 0.498 0.378 0.397 -0.024 -0.146 -0. 3 0.443 0.392 0.131 -0.105 -0.115 -0.4 4 0.357 0.558 0.022 -0.008 -0.099 -0.5 5 0.281 -0.093 0.335 0.373 0.108 -0.7 7 0.318 -0.336 0.243 -0.035 0.069 0. 8 0.499 -0.203 0.451 0.440 0.217 0.9 9 0.559 -0.014 0.145 0.440 0.217 0.3 10 0.395 0.055 0.009 0.487 0.340 0.1 11 0.511 -0.015 0.171 0.619 0.248 0.3 11 0.511 -0.015 0.171 0.619 0.248 0.3 12 0.518 -0.172 0.666 -0.005 0.015 0.015 0.011 0.3 13 0.373 0.300 0.522 0.032 -0.008 0.14 0.365 0.301 0.100 0.017 0.510 0.015 0.17 0.404 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015 0.17 0.510 0.015								
2 0.498 0.378 0.397 -0.024 -0.146 -0.1 3 0.443 0.392 0.131 -0.105 -0.115 -0.1 4 0.357 0.558 0.022 -0.008 -0.099 -0.5 5 0.281 -0.093 0.335 0.373 0.108 -0.6 6 0.232 0.137 -0.155 0.427 0.052 0.6 7 0.318 -0.336 0.243 -0.035 0.069 0.3 8 0.499 -0.203 0.451 0.440 0.217 0.4 9 0.559 -0.014 0.145 0.718 -0.133 0.4 10 0.395 0.055 0.009 0.487 0.340 0.1 11 0.511 -0.015 0.171 0.619 0.248 0.1 12 0.518 -0.172 0.666 -0.005 0.015 0.015 0.1 13 0.373 0.300 0.522 0.032 -0.008 0.1 14 0.365 0.130 0.110 0.017 0.510 0.1 15 0.391 0.495 0.187 0.023 0.306 -0.0 16 0.573 0.008 0.659 0.236 0.164 0.0 17 0.428 0.446 0.664 -0.319 0.087 -0.1 18 0.360 -0.182 0.307 0.010 0.111 0.087 -0.0 19 0.445 -0.251 0.323 0.340 0.385 0.0 20 0.613 0.071 0.687 0.225 -0.104 0.2 21 0.438 -0.167 0.497 -0.080 0.225 -0.104 0.2 22 0.382 0.540 0.127 0.014 0.024 -0.2 23 0.539 0.300 0.91 0.00 0.020 -0.042 0.0 24 0.510 -0.414 -0.107 -0.238 0.486 -0.0 25 0.384 -0.008 0.689 0.236 0.140 0.224 0.510 0.0 26 0.454 0.551 0.009 0.009 0.020 -0.042 0.0 27 0.344 0.120 -0.014 0.024 -0.0 28 0.552 0.661 -0.167 0.029 -0.192 -0.0 29 0.457 0.384 -0.008 0.68 0.547 0.093 0.486 0.0 26 0.454 0.551 0.044 -0.188 -0.252 -0.104 0.2 27 0.344 0.120 -0.014 -0.329 -0.192 -0.1 28 0.552 0.661 -0.167 0.024 -0.188 -0.252 -0.192 0.0 29 0.457 0.364 0.057 0.089 0.088 -0.078 -0.080 0.059 0.050 0.000 0.0	Item	Communalities	I	11	111	IV	V	VI
3		0.449	0.370	0.233	-0.178	-0.406	-0.198	0.147
4 0.357 0.558 0.022 -0.008 -0.099 -0. 5 0.281 -0.093 0.335 0.373 0.108 -0.108 6 0.232 0.137 -0.155 0.427 0.052 0.4 7 0.318 -0.336 0.243 -0.035 0.069 0. 8 0.499 -0.203 0.451 0.440 0.217 0.4 9 0.559 -0.014 0.145 0.718 -0.133 0.4 10 0.395 0.055 0.009 0.487 0.340 0. 11 0.511 -0.015 0.711 0.619 0.248 0. 12 0.518 -0.172 0.666 -0.005 0.015 0.4 13 0.373 0.300 0.522 0.032 -0.008 0.6 14 0.365 0.130 0.110 0.017 0.510 0. 15 0.391 0.495 0.187 0.023 0.306 -0.4 16 0.573 0.008 0.659 0.236 0.164 0. 17 0.428 0.446 0.064 -0.319 0.087 -0. 18 0.360 -0.182 0.307 0.010 0.111 0.2 19 0.445 -0.251 0.323 0.340 0.385 0. 20 0.613 0.071 0.687 0.225 -0.104 0. 21 0.438 0.167 0.497 -0.080 0.235 0. 22 0.382 0.540 0.127 0.014 0.022 -0.042 0. 23 0.539 0.300 0.091 0.091 0.000 0.235 0. 24 0.510 -0.414 -0.107 -0.238 0.486 -0.0 25 0.384 -0.008 0.669 0.59 0.236 0.164 0. 27 0.344 0.102 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000			0.378	0.397	-0.024	-0.146	-0.392	0.151
5         0.281         -0.093         0.335         0.373         0.108         -0.47           6         0.232         0.137         -0.155         0.427         0.052         0.4           7         0.318         -0.336         0.243         -0.035         0.069         0.8           8         0.499         -0.203         0.451         0.440         0.217         0.0           9         0.559         -0.014         0.145         0.718         -0.133         0.340         0.           10         0.395         0.055         0.009         0.487         0.340         0.           11         0.511         -0.015         0.171         0.619         0.248         0.           12         0.518         -0.172         0.666         -0.005         0.015         0.015           13         0.373         0.300         0.522         0.032         -0.088         0.           14         0.365         0.130         0.110         0.017         0.510         0.           15         0.391         0.495         0.187         0.023         0.306         -0.           17         0.428         0.446         0.06			0.392	0.131	-0.105	-0.115	-0.459	-0.193
6 0.232 0.137 -0.155 0.427 0.052 0.4 7 0.318 -0.336 0.243 -0.035 0.069 0.3 8 0.499 -0.203 0.451 0.440 0.217 0.4 9 0.5559 -0.014 0.145 0.718 -0.133 0.4 11 0.511 -0.015 0.171 0.619 0.248 0.340 0.1 12 0.518 -0.172 0.666 -0.005 0.015 0.4 13 0.373 0.300 0.522 0.032 -0.008 0.6 14 0.365 0.130 0.110 0.017 0.510 0.1 15 0.391 0.495 0.187 0.23 0.306 -0.6 16 0.573 0.008 0.659 0.236 0.164 0. 17 0.428 0.446 0.064 -0.319 0.087 -0.1 18 0.360 -0.182 0.307 0.010 0.111 0.0 19 0.445 -0.251 0.323 0.340 0.385 0. 20 0.613 0.071 0.687 0.225 -0.104 0.2 21 0.438 -0.167 0.497 -0.080 0.235 0.1 22 0.382 0.540 0.127 0.014 0.024 -0. 23 0.539 0.300 0.991 0.020 -0.042 0. 24 0.510 -0.414 -0.107 -0.238 0.486 -0.4 25 0.384 -0.008 0.068 0.547 0.023 0.306 -0.4 26 0.454 0.551 0.044 -0.188 -0.252 -0.104 27 0.344 0.120 -0.014 -0.129 -0.192 -0.1 28 0.552 0.661 -0.6167 0.024 -0.189 -0.252 -0.3 29 0.457 0.635 0.030 0.991 0.020 -0.042 0. 24 0.510 -0.414 -0.107 -0.238 0.486 -0.4 25 0.384 -0.008 0.068 0.547 0.093 0.6 26 0.454 0.551 0.044 -0.188 -0.252 -0.3 30 0.654 -0.008 0.068 0.547 0.093 0.6 30 0.654 -0.048 0.247 0.191 0.737 0.6 31 0.531 0.665 -0.111 0.002 0.209 0.3 32 0.524 0.057 0.128 0.205 0.558 0.3 33 0.544 -0.004 0.146 -0.226 0.078 -0.078 0.073 0.074 0.075			0.558	0.022	-0.008	-0.099	-0.118	0.145
8 0.499 -0.203 0.451 0.440 0.217 0.4 9 0.5559 -0.014 0.145 0.718 -0.133 0.4 10 0.395 0.055 0.009 0.487 0.340 0.1 11 0.511 -0.015 0.171 0.619 0.248 0.1 12 0.518 -0.172 0.666 -0.005 0.015 0.015 13 0.373 0.300 0.522 0.032 -0.008 0.4 14 0.365 0.130 0.110 0.017 0.510 0.7 15 0.391 0.495 0.187 0.023 0.306 -0.6 16 0.573 0.008 0.659 0.236 0.164 0. 17 0.428 0.446 0.664 -0.319 0.087 -0.7 18 0.360 -0.182 0.307 0.010 0.111 0.4 19 0.445 -0.251 0.323 0.306 0.385 0. 20 0.613 0.071 0.687 0.225 -0.104 0.2 21 0.438 -0.167 0.687 0.225 -0.104 0.2 22 0.382 0.554 0.127 0.014 0.022 -0.042 -0.0 24 0.510 -0.414 -0.107 -0.238 0.486 -0.0 25 0.384 -0.008 0.668 0.547 0.093 0.496 -0.0 26 0.454 0.551 0.044 -0.188 -0.252 -0.0 27 0.344 0.100 -0.414 -0.107 -0.238 0.486 -0.0 28 0.552 0.661 -0.167 0.097 -0.024 -0.146 -0.2 29 0.457 0.635 0.034 0.088 -0.552 0.661 -0.167 0.008 0.023 0.360 -0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.00091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.0091 0.000 -0.002 0.000 0.000 0.000 0.000 0.0000 0.0			-0.093	0.335	0.373	0.108	-0.060	0.076
8				-0.155	0.427	0.052	0.030	0.056
9				0.243	-0.035	0.069	0.210	0.310
10			-0.203	0.451	0.440	0.217	0.010	-0.117
11			-0.014	0.145	0.718	-0.133	0.054	0.044
12			0.055	0.009	0.487	0.340	0.195	0.033
13			-0.015	0.171	0.619	0.248	0.147	-0.123
14         0.365         0.130         0.110         0.017         0.510         0.21           15         0.391         0.495         0.187         0.023         0.306         -0.164         0.           17         0.428         0.446         0.064         -0.319         0.087         -0.           18         0.360         -0.182         0.307         0.010         0.111         0.           19         0.445         -0.251         0.323         0.340         0.385         0.           20         0.613         0.071         0.687         0.225         -0.104         0.           21         0.438         -0.167         0.497         -0.080         0.235         0.           22         0.382         0.540         0.127         0.014         0.024         -0.           23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.668         0.547         0.093         0.           27         0.344         0.146         -0.		0.518	-0.172	0.666	<b>-0.</b> 005	0.015	0.080	0.193
15		0.373	0.300	0.522	0.032	-0.008	0.092	0.011
16         0.573         0.008         0.659         0.236         0.164         0.           17         0.428         0.446         0.064         -0.319         0.087         -0.           18         0.360         -0.182         0.307         0.010         0.111         0.           19         0.445         -0.251         0.323         0.340         0.385         0.           20         0.613         0.071         0.687         0.225         -0.104         0.           21         0.438         -0.167         0.497         -0.080         0.235         0.           22         0.382         0.540         0.127         0.014         0.024         -0.           23         0.539         0.300         0.091         0.020         -0.042         -0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.688         0.547         0.093         0.           25         0.384         0.120         -0.014         -0.188         -0.252         -0.           27         0.344         0.186         0.547         0		0.365	0.130	0.110	0.017	0.510	0.265	0.071
17         0.428         0.446         0.064         -0.319         0.087         -0.18           18         0.360         -0.182         0.307         0.010         0.111         0.445           20         0.613         0.071         0.687         0.225         -0.104         0.21           21         0.438         -0.167         0.497         -0.080         0.235         0.2           22         0.382         0.540         0.127         0.014         0.024         -0.           23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.42           25         0.384         -0.008         0.068         0.547         0.093         0.           26         0.454         0.551         0.044         -0.188         -0.252         -0.           27         0.344         0.120         -0.014         -0.188         -0.252         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034		0.391	0.495	0.187	0.023	0.306	-0.059	0.117
18         0.360         -0.182         0.307         0.010         0.111         0.419         0.445         -0.251         0.323         0.340         0.385         0.         20         0.613         0.071         0.687         0.225         -0.104         0.225         -0.104         0.225         0.104         0.224         0.235         0.         0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.014         0.024         -0.         0.024         -0.         0.024         -0.         0.024         -0.         0.024         -0.         0.024         0.034         0.088         -0.044         -0.188         -0.252         0.024         -0.044         -0.188         -0.252         -0.         0.024         -0.146         -0.238         0.044         -0.188         -0.252         -0.         0.024         -0.146         -0.239         0.024         -0.042         -0.042         0.024         0.024         -0.146         -0	16	0.573	0.008	0.659	0.236	0.164	0.188	-0.142
18         0.360         -0.182         0.307         0.010         0.111         0.4           19         0.445         -0.251         0.323         0.340         0.385         0.           20         0.613         0.071         0.687         0.225         -0.104         0.           21         0.438         -0.167         0.497         -0.080         0.235         0.           22         0.382         0.540         0.127         0.014         0.024         -0.           23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.068         0.547         0.093         0.           26         0.454         0.551         0.044         -0.188         -0.252         -0.           27         0.344         0.120         -0.014         -0.329         -0.192         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034         <		0.428					-0.266	0.213
19	18						0.469	0.014
21         0.438         -0.167         0.497         -0.080         0.235         0.22           22         0.382         0.540         0.127         0.014         0.024         -0.23           23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.068         0.547         0.093         0.6           26         0.454         0.551         0.044         -0.188         -0.252         -0.2           27         0.344         0.120         -0.014         -0.329         -0.192         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034         0.088         -0.078         -0.           30         0.654         -0.048         0.247         0.191         0.737         0.           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128	19	0.445	-0.251	0.323			0.113	0.033
21         0.438         -0.167         0.497         -0.080         0.235         0.22           22         0.382         0.540         0.127         0.014         0.024         -0.23           23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.068         0.547         0.093         0.           26         0.454         0.551         0.044         -0.188         -0.252         -0.           27         0.344         0.120         -0.014         -0.329         -0.192         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034         0.088         -0.078         -0.           30         0.654         -0.048         0.247         0.191         0.737         0.           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128	20						0.271	-0.039
23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.068         0.547         0.093         0.           26         0.454         0.551         0.044         -0.188         -0.252         -0.           27         0.344         0.120         -0.014         -0.329         -0.192         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034         0.088         -0.078         -0.           30         0.654         -0.048         0.247         0.191         0.737         0.           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128         0.205         0.558         0.           33         0.544         -0.004         0.146         0.026         0.056         0.           34         0.531         0.182         0.473 <td< td=""><td>21</td><td>0.438</td><td>-0.167</td><td></td><td></td><td></td><td>0.311</td><td>0.070</td></td<>	21	0.438	-0.167				0.311	0.070
23         0.539         0.300         0.091         0.020         -0.042         0.           24         0.510         -0.414         -0.107         -0.238         0.486         -0.           25         0.384         -0.008         0.068         0.547         0.093         0.           26         0.454         0.551         0.044         -0.188         -0.252         -0.           27         0.344         0.120         -0.014         -0.329         -0.192         -0.           28         0.552         0.661         -0.167         0.024         -0.146         -0.           29         0.457         0.635         0.034         0.088         -0.078         -0.           30         0.654         -0.048         0.247         0.191         0.737         0.           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128         0.205         0.558         0.           33         0.544         -0.004         0.146         0.026         0.056         0.           34         0.531         0.187         0.089 <td< td=""><td>22</td><td>0.382</td><td>0.540</td><td></td><td></td><td></td><td>-0.133</td><td>0.235</td></td<>	22	0.382	0.540				-0.133	0.235
24         0.510         -0.414         -0.107         -0.238         0.486         -0.025         0.384         -0.008         0.068         0.547         0.093         0.0         26         0.454         0.551         0.044         -0.188         -0.252         -0.2         27         0.344         0.120         -0.014         -0.329         -0.192         -0.2         28         0.552         0.661         -0.167         0.024         -0.146         -0.2         29         0.457         0.635         0.034         0.088         -0.078         -0.0         30         0.654         -0.048         0.247         0.191         0.737         0.0         31         0.531         0.665         -0.111         0.002         0.209         0.         32         0.524         0.057         0.128         0.205         0.558         0.         33         0.544         -0.004         0.146         0.026         0.056         0.5         34         0.531         0.182         0.473         0.083         0.345         0.         0.         0.         34         0.531         0.187         0.089         0.024         0.021         0.         0.         0.         0.         0.057         0.188         0.026 </td <td>23</td> <td>0.539</td> <td>0.300</td> <td></td> <td></td> <td></td> <td>0.104</td> <td>0.654</td>	23	0.539	0.300				0.104	0.654
25	24	0.510					-0.022	0.184
26         0.454         0.551         0.044         -0.188         -0.252         -0.2           27         0.344         0.120         -0.014         -0.329         -0.192         -0.2           28         0.552         0.661         -0.167         0.024         -0.146         -0.2           29         0.457         0.635         0.034         0.088         -0.078         -0.6           30         0.654         -0.048         0.247         0.191         0.737         0.6           31         0.531         0.665         -0.111         0.002         0.209         0.3           32         0.524         0.057         0.128         0.205         0.558         0.3           33         0.544         -0.004         0.146         0.026         0.056         0.5           34         0.531         0.182         0.473         0.083         0.345         0.2           35         0.575         0.187         0.089         0.024         0.021         0.6           36         0.571         0.734         -0.040         0.122         -0.115         -0.6           37         0.583         -0.090         0.670	25						0.013	0.268
27         0.344         0.120         -0.014         -0.329         -0.192         -0.228           28         0.552         0.661         -0.167         0.024         -0.146         -0.229           29         0.457         0.635         0.034         0.088         -0.078         -0.130           30         0.654         -0.048         0.247         0.191         0.737         0.0           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128         0.205         0.558         0.           33         0.544         -0.004         0.146         0.026         0.056         0.           34         0.531         0.182         0.473         0.083         0.345         0.           35         0.575         0.187         0.089         0.024         0.021         0.           36         0.571         0.734         -0.040         0.122         -0.115         -0.           37         0.583         -0.090         0.670         -0.098         0.195         -0.           38         0.515         -0.252         0.374	26	0.454					-0.221	-0.028
28         0.552         0.661         -0.167         0.024         -0.146         -0.2           29         0.457         0.635         0.034         0.088         -0.078         -0.0           30         0.654         -0.048         0.247         0.191         0.737         0.0           31         0.531         0.665         -0.111         0.002         0.209         0.           32         0.524         0.057         0.128         0.205         0.558         0.           33         0.544         -0.004         0.146         0.026         0.056         0.           34         0.531         0.182         0.473         0.083         0.345         0.           35         0.575         0.187         0.089         0.024         0.021         0.           36         0.571         0.734         -0.040         0.122         -0.115         -0.0           37         0.583         -0.090         0.670         -0.098         0.195         -0.           38         0.515         -0.252         0.374         -0.219         0.171         0.4           39         0.506         -0.419         0.241 <t< td=""><td>27</td><td></td><td></td><td></td><td></td><td></td><td>-0.210</td><td>0.375</td></t<>	27						-0.210	0.375
29       0.457       0.635       0.034       0.088       -0.078       -0.0         30       0.654       -0.048       0.247       0.191       0.737       0.0         31       0.531       0.665       -0.111       0.002       0.209       0.         32       0.524       0.057       0.128       0.205       0.558       0.         33       0.544       -0.004       0.146       0.026       0.056       0.         34       0.531       0.182       0.473       0.083       0.345       0.         35       0.575       0.187       0.089       0.024       0.021       0.         36       0.571       0.734       -0.040       0.122       -0.115       -0.0         37       0.583       -0.090       0.670       -0.098       0.195       -0.0         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107							-0.219	0.131
30       0.654       -0.048       0.247       0.191       0.737       0.6         31       0.531       0.665       -0.111       0.002       0.209       0.3         32       0.524       0.057       0.128       0.205       0.558       0.3         33       0.544       -0.004       0.146       0.026       0.056       0.3         34       0.531       0.182       0.473       0.083       0.345       0.3         35       0.575       0.187       0.089       0.024       0.021       0.6         36       0.571       0.734       -0.040       0.122       -0.115       -0.0         37       0.583       -0.090       0.670       -0.098       0.195       -0.0         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047							-0.099	0.172
31       0.531       0.665       -0.111       0.002       0.209       0.32         32       0.524       0.057       0.128       0.205       0.558       0.33         33       0.544       -0.004       0.146       0.026       0.056       0.345         34       0.531       0.182       0.473       0.083       0.345       0.35         35       0.575       0.187       0.089       0.024       0.021       0.6         36       0.571       0.734       -0.040       0.122       -0.115       -0.6         37       0.583       -0.090       0.670       -0.098       0.195       -0.6         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.6         43       0.545       0.028       0							0.032	-0.102
32       0.524       0.057       0.128       0.205       0.558       0.3         33       0.544       -0.004       0.146       0.026       0.056       0.7         34       0.531       0.182       0.473       0.083       0.345       0.3         35       0.575       0.187       0.089       0.024       0.021       0.6         36       0.571       0.734       -0.040       0.122       -0.115       -0.6         37       0.583       -0.090       0.670       -0.098       0.195       -0.6         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297							0.106	0.147
33       0.544       -0.004       0.146       0.026       0.056       0.7         34       0.531       0.182       0.473       0.083       0.345       0.3         35       0.575       0.187       0.089       0.024       0.021       0.0         36       0.571       0.734       -0.040       0.122       -0.115       -0.6         37       0.583       -0.090       0.670       -0.098       0.195       -0.6         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.6         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.6         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.6         45       0.543       0.180       0.454							0.387	-0.032
34       0.531       0.182       0.473       0.083       0.345       0.3         35       0.575       0.187       0.089       0.024       0.021       0.0         36       0.571       0.734       -0.040       0.122       -0.115       -0.0         37       0.583       -0.090       0.670       -0.098       0.195       -0.0         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         47       0.396       0.007       0.152<							0.707	0.137
35         0.575         0.187         0.089         0.024         0.021         0.03           36         0.571         0.734         -0.040         0.122         -0.115         -0.03           37         0.583         -0.090         0.670         -0.098         0.195         -0.03           38         0.515         -0.252         0.374         -0.219         0.171         0.4           39         0.506         -0.419         0.241         -0.233         0.380         0.0           40         0.575         -0.369         -0.134         0.142         0.475         -0.2           41         0.597         0.721         -0.107         0.115         0.197         0.1           42         0.623         0.770         -0.047         0.127         0.064         0.0           43         0.551         0.597         -0.144         0.012         -0.132         0.2           44         0.545         0.028         0.297         0.370         0.564         0.0           45         0.543         0.180         0.454         0.420         0.306         0.3           46         0.371         -0.097         0.145							0.377	-0.079
36       0.571       0.734       -0.040       0.122       -0.115       -0.0         37       0.583       -0.090       0.670       -0.098       0.195       -0.0         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         49       0.449       0.188       -0.00							0.052	0.727
37       0.583       -0.090       0.670       -0.098       0.195       -0.0         38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-0.015</td> <td>0.047</td>							-0.015	0.047
38       0.515       -0.252       0.374       -0.219       0.171       0.4         39       0.506       -0.419       0.241       -0.233       0.380       0.0         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417							-0.046	0.277
39       0.506       -0.419       0.241       -0.233       0.380       0.6         40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.6         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.6         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070							0.408	0.260
40       0.575       -0.369       -0.134       0.142       0.475       -0.2         41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012							0.056	0.266
41       0.597       0.721       -0.107       0.115       0.197       0.1         42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.061							-0.215	0.360
42       0.623       0.770       -0.047       0.127       0.064       0.0         43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.115	0.004
43       0.551       0.597       -0.144       0.012       -0.132       0.2         44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.075	-0.048
44       0.545       0.028       0.297       0.370       0.564       0.0         45       0.543       0.180       0.454       0.420       0.306       0.1         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.267	-0.293
45       0.543       0.180       0.454       0.420       0.306       0.18         46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.207	-0.293
46       0.371       -0.097       0.145       0.229       0.055       0.5         47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.019	-0.135
47       0.396       0.007       0.152       0.392       0.025       0.4         48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.127	0.002
48       0.313       0.047       0.277       0.190       0.181       0.3         49       0.449       0.188       -0.004       0.276       0.090       0.2         50       0.413       0.002       0.417       0.209       0.434       0.0         51       0.430       0.041       0.070       0.569       0.234       0.2         52       0.314       0.175       -0.012       0.527       -0.061       -0.0							0.448	-0.138
49     0.449     0.188     -0.004     0.276     0.090     0.2       50     0.413     0.002     0.417     0.209     0.434     0.0       51     0.430     0.041     0.070     0.569     0.234     0.2       52     0.314     0.175     -0.012     0.527     -0.061     -0.0							0.389	0.120
50     0.413     0.002     0.417     0.209     0.434     0.0       51     0.430     0.041     0.070     0.569     0.234     0.2       52     0.314     0.175     -0.012     0.527     -0.061     -0.0							0.200	0.120
51 0.430 0.041 0.070 0.569 0.234 0.2 52 0.314 0.175 -0.012 0.527 -0.061 -0.0							0.200	0.008
52 0.314 0.175 -0.012 0.527 -0.061 -0.0							0.087	-0.018
Total 2/ 319 6 368 4 507 4 073 3 696 3 1							-0.038	-0.019
10(21 24.51) 0.500 4.507 4.075 5.070 5.1	otal	24.319	6.368	4.507	4.073	3.696	3.168	2.508
Percentage of Total Variance								
46.768 12.246 8.666 7.833 7.107 6.0		46.768	12.246	8.666	7.833	7.107	6.093	4.822



of this variation. Harman (1:1967:17-19) explains that the total variance is the sum of three components, the communality, the specificity, and the error variance. The communality of a variable, given by the sum of the squares of the factor loadings or coefficients, indicates the extent to which the factors account for the total variance of the variable. Thus the sum of the communalities indicates the extent to which the common factors account for the total variance of all the items on the instrument. In this study, the six factors that evolved accounted for approximately forty-seven per cent of the total variance of the instrument.

The error variance, calculated by subtracting the reliability coefficient from unity, indicates the variance due to the unreliability of the instrument. Given that the Kuder-Richardson 20 reliability coefficient was 0.69 (Supra, p.28), the error variance accounted for thirty-one per cent of the total variance.

The residual variance is due to the specificity of the instrument or the particular choice of items in the questionnaire, and the remaining twenty-two per cent of the total variance is ascribed to this source.

In order to increase the proportion of the total variance for which the communalities account, the instrument should be developed further. The proportion deemed acceptable depends upon the purpose of the study. Since the present study was limited to identifying the broad dimensions of the high school student's role, the amount of the total variance accounted for by six factors was regarded as adequate. Moreover, the contribution of additional factors to a description of the variables, which can be seen in Table II, was not appreciable.



### Naming the Factors

Kelley comments on the pitfalls inherent in attempting to find a name for a factor when inspecting the items associated with it, and he warns that "he who assumes to read more remote verities into the factorial outcome is certainly doomed to disappointment," (5:1940: 117-120). The approach used in this study was to list all the items with a factor coefficient of 0.3 or greater, including the items with negative loadings, in order of descending value and to attempt a description of the factor by taking every item into consideration. This is done in Tables IV-IX. More weight was given the higher order items in the interpretation. The names chosen are clarified in the following paragraphs.

Factor I - Student Conformity. The items associated with this factor, given in Table IV, appear to describe the attitudes of a student who is anxious to cooperate with the school administration (42), to adhere to convention (36, 31, 29, 17, and 2), and to conform to school rules and regulations (26, 3, and 1). He is anxious to please and be accepted by others (41, 43, 22, and 15), and tends to behave in ways that anticipate the approval of his superiors (28, 43, 4, 17, and 1). He is especially opposed to behavior he deems to exceed the bounds of propriety (7 and 40), or that evades the school rules (24 and 39). The prevalent disposition in this syndrome of attitudes is compliance with the expectations of superiors: therefore, the title of Student Conformity was thought to be suitable for the factor.

Factor II - Student Participation. The items loading on the second factor, shown in Table V, favor student participation in the administration of the school. These attitudes show a concern for student



TABLE IV

ITEMS LOADING ON FACTOR ONE - STUDENT CONFORMITY

Item	Loading
To cooperate with the administration (42)*	0.770
To be well-groomed (36)	0.770
To try to get along with his instructors (41)	0.721
To be well-mannered (31)	0.665
To be an example to other students (28)	0.661
To be hard-working (29)	0.635
To address his instructors with respect (43)	0.597
To try to get good marks (4)	0.558
To conform to rules and regulations (26)	0.551
To try to be accepted by his peer-group (22)	0.540
To try to be accepted by the staff (15)	0.495
To take detailed notes in class (17)	0.446
To conform to rules and regulations governing dress (3)	0.392
To spend substantial time studying course materials (2)	0.378
To attend all classes regularly (1)	0.370
To have freedom of choice of courses he wishes to study (13)	0.300
To take an active part in student activities (23)	0.300
To have freedom to experiment with LSD or other drugs (7)	-0.336
To feel free to call staff members by their first names (40)	-0.369
To evade institutional rules and regulations (24)	-0.414
To observe only minimal compliance with rules and	
regulations (39)	-0.419
•	

<sup>\*</sup> Figures in parenthesis denote number on questionnaire

representation in making decisions affecting many aspects of school government (37, 12, 16, 21, 45, and 50). A student who holds such attitudes desires a voice in determining certain features of the curriculum program that affect his progress through school (20, 13, 34, and 2). Another ingredient of this disposition seems to be a belief in the right of students to challenge existing values upon which the school system operates (5 and 19), and to use group tactics as a means of expression for student opinion if necessary (38 and 18). The title Student Participation was chosen to describe these sentiments that



regard student involvement in school administration as a legitimate dimension of the student's role.

TABLE V

ITEMS LOADING ON FACTOR TWO - STUDENT PARTICIPATION

Item	Loading
To participate in planning the content of a course (20)*	0.687
To have representation at staff meetings (37)	0.670
To have representation at board meetings (12)	0.666
To be represented in setting up rules and regulations (16)	0.659
To have freedom of choice of courses he wishes to study (13)	0.522
To be represented in the selection of staff (21)	0.497
To have a voice in determining the methods used in	
in assessing his performance (34)	0.473
To be represented in planning the calendar of activities (4.	5)0.454
To participate in the evaluation of the effectiveness	
of staff (8)	0.451
To be represented in decisions regarding the expulsion	
of students (50)	0.417
To spend substantial time studying course materials (2)	0.397
To demonstrate on issues (38)	0.374
To feel free to challenge an instructor's statements (5)	0.335
To feel free to challenge existing values (19)	0.323
To feel free to boycott classes (18)	0.307

<sup>\*</sup> Figures in parenthesis denote number on questionnaire

Factor III - Student Criticism. The items loading on the third factor, listed in Table VI, emphasize the student's right to express criticism of institutional policies (11, 10, and 44). This set of attitudes appears to manifest an individual sense of responsibility (52 and 6) and intellectual forthrightness (9, 25, 5, and 19). A student so disposed appears to be concerned that the school organization does not hinder his scholastic progress (51 and 8), and that the quality of the learning experiences is not impoverished by dull routine (17 and 27).



Student Criticism was considered an adequate title for this factor.

TABLE VI

ITEMS LOADING ON FACTOR THREE - STUDENT CRITICISM

Item	Loading
To be inquisitive (9)*	0.718
To feel free to criticize a specific institutional policy	
when with his student group (11)	0.619
To be allowed to complete his courses in less than the	
allotted time (51)	0.569
To be open-minded (25)	0.547
To be prepared to suffer disciplinary consequences	
resulting from his actions (52)	0.527
To feel free to criticize a specific institutional policy	
at home with his family (10)	0.487
To participate in the evaluation of the effectiveness	
of staff (8)	0.440
To expect to be disciplined by his peer-group (6)	0.427
To be represented in planning the calendar of activities (	45)0.420
To be allowed to make use of the school library for study	
after hours (47)	0.392
To feel free to challenge an instructor's statements (5) To feel free to criticize a specific institutional	0.373
policy openly (44)	0.370
To feel free to challenge existing values (19)	0.340
To take detailed notes in class (17)	-0.319
To memorize facts (27)	-0.327

<sup>\*</sup> Number in parenthesis denotes questionnaire listing

Factor IV - Student Challenge. The items loading on factor four, which are shown in Table VII, differ from those in the third factor on a number of points. They appear to convey a group, rather than an individual, attitude (44, 14, 50, and 45). There seems to be a greater emphasis on the right of the students, in principle, to challenge the existing order (30, 44, 32, 19, and 10), and a corresponding relative lack of emphasis on responsible behavior (24, 39, and 1). In addition



TABLE VII

ITEM LOADINGS ON FACTOR FOUR - STUDENT CHALLENGE

Item	Loading
To feel free to challenge a staff member's interpretation	
of a rule (30)*	0.737
To feel free to criticize a specific institutional	
policy openly (44)	0.564
To feel free to question an instructor's evaluation of	
his performance (32)	0.558
To have freedom of expression in the student paper (14)	0.510
To evade institutional rules and regulations (24)	0.486
To feel free to call staff members by their first names (40)	0.475
To be represented in decisions regarding the expulsion	
of students (50)	0.434
To feel free to challenge existing values (19)	0.385
To observe only minimal compliance to rules and regulations	
(39)	0.380
To have a voice in determining the methods used in the	
evaluation of his performance (34)	0.345
To feel free to criticize a specific institutional policy	
at home with his family (10)	0.340
To try to be accepted by the staff (15)	0.306
To be represented in planning the calendar of activities (45)	0.306
To attend all classes regularly (1)	-0.406

<sup>\*</sup> Number in parenthesis denotes questionnaire listing

the element of intellectual independence is absent, while a liberty is sought that tends to put the student on an equal footing with staff members (32, 40, and 50). Student Challenge was thought to be a suitable name for this factor.

Factor V - Individual Quest. The attitudes described by the items in this factor, shown in Table VIII, might be exhibited by a student concerned that the school organization should serve him as an individual in pursuit of knowledge. Learning as an inquiry process is stressed (46, 47, and 48), and, as a correlative of this, the liberty to pursue



TABLE VIII

ITEMS LOADING ON FACTOR FIVE - INDIVIDUAL QUEST

Item	Loading
To have freedom to move in buildings (33)*	0.707
To be allowed to make use of the laboratory for	
individual science projects (46)	0.534
To feel free to boycott classes (18)	0.469
To be allowed to make use of the school library for	
study after hours (47)	0.448
To demonstrate on issues (38)	0.408
To be allowed to hold informal seminars on critical	
issues (48)	0.389
To feel free to question an instructor's evaluation	
of his performance (32)	0.387
To have a voice in determining the methods used in	
assessing his performance (34)	0.377
To be represented in the selection of staff (21)	0.311
To spend substantial time studying course materials (2)	-0.392
To conform to rules and regulations governing dress (3)	<del>-</del> 0.459

<sup>\*</sup> Numbers in parenthesis denote questionnaire listing

such a course within the school organization (33, 18, 48, and 21). Individual Quest was chosen as a suitable characterization of this dimension of the high school student's role.

Factor VI - Student Socializing. Items loading on this factor are shown in Table IX, and they reveal attitudes of being involved in social activities with fellow-students and staff (35, 23, 49, and 40). Student Socializing was regarded as a suitable name for this factor.

# Pattern of Responses to the Six Factors

In order to illustrate the pattern of sample responses to the six factors derived, a frequency count was made of individual mean scores



TABLE IX

ITEMS LOADING ON FACTOR SIX - STUDENT SOCIALIZING

Item	Loading
To be politically involved (35)* To take an active part in student activities (23) To participate in extra-curricular activities with	0.727 0.654
staff members (49)	0.537
To memorize facts (27)	0.375
To feel free to call staff members by their first names (40)	
To feel free to experiment with LSD or other drugs (7)	0.310

<sup>\*</sup> Numbers in parenthesis denote questionnaire listing

(Supra, p.33) on each. These are shown, together with means and standard deviations, in Table X. The distribution mean indicates the average degree of agreement of the sample of education students with a factor.

Graphic representations of the six frequency distributions are given in Figures 2 to 7.

A significant feature of the six distributions was the preponderance of individual mean scores on the agreement ends of the continua: the distribution mean falls in the undecided interval for the sixth factor only. Education students tended to agree that the high school student ought to behave in a manner expressed by the items in each factor. They showed most agreement toward factor three, Student Criticism, and least agreement toward factor six, Student Socializing. The response pattern for the sample was fairly consistent, and the variation in perceptions of the high school student's role, as indicated by the standard deviations (Table X), did not differ greatly from one factor to the next.

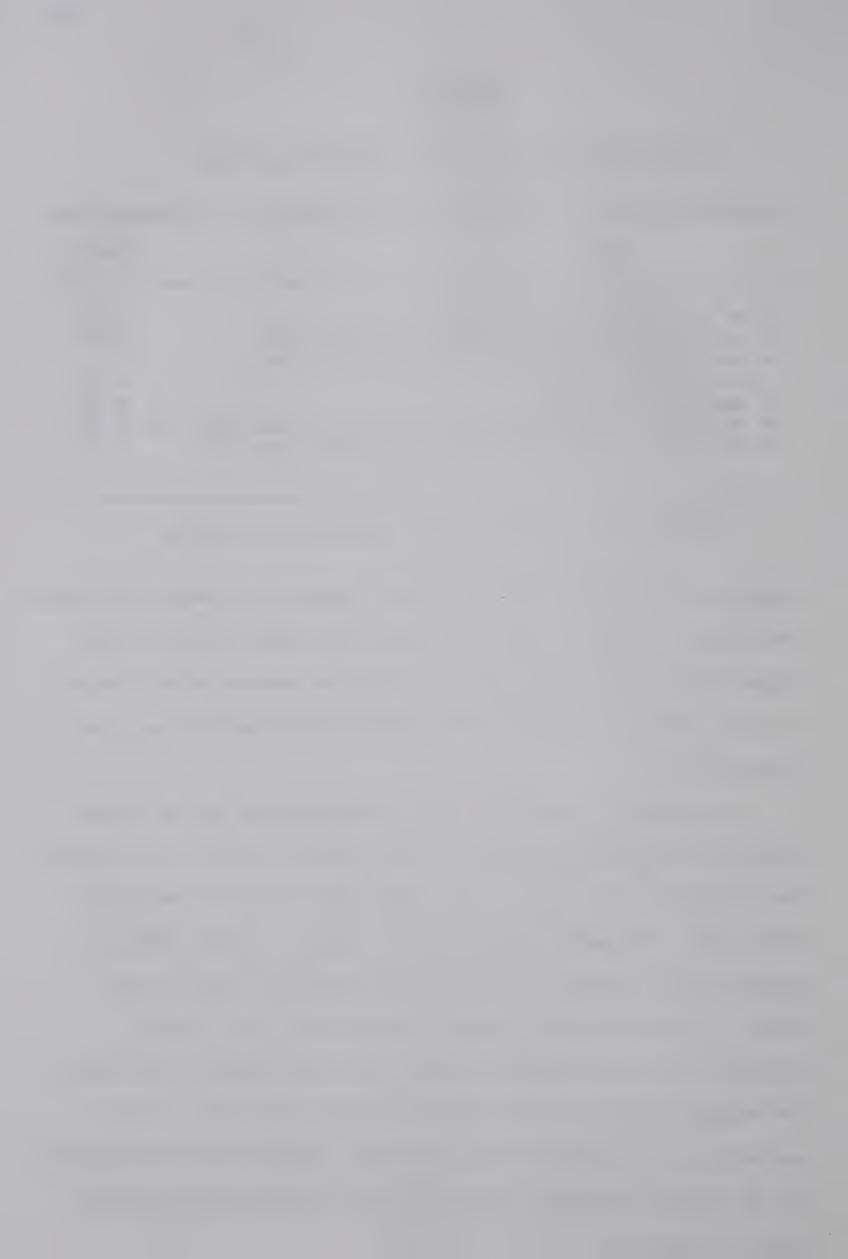
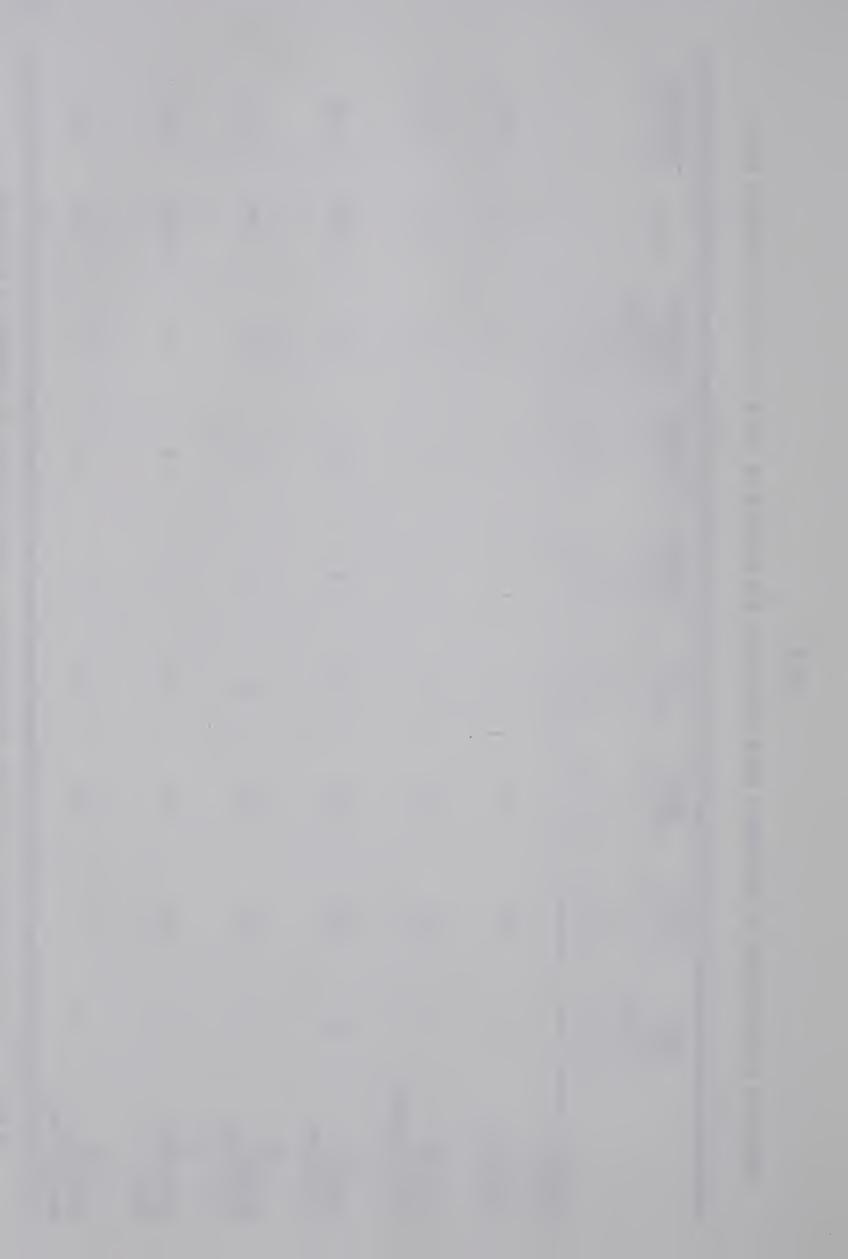


TABLE X

FREQUENCY DISTRIBUTION OF INDIVIDUAL MEAN SCORES FOR SIX FACTORS OF THE HIGH SCHOOL STUDENT'S ROLE

	Agree Very Strongly 1*	Agree Strongly 2 1.5-2.5	Agree Somewhat 3 2.5-3.5	Un- decided 4 3.5-4.5	Disagree Somewhat 5 4.5-5.5	Disagree Strongly 6 5.5-6.5	Disagree Very Strongly 7 6.5-7.5	Means	Standard Deviations
Factors I. Student Conformity	1.5	69	24	F-1	1	0	0	2.13	0.68
II. Student Participation	Q.	34	58	7	7	0	0	2.63	08.0
III. Student Criticism	30	99	14	0		0	0	1.85	0.62
IV. Student Challenge	2	30	57	21	0	0	0	2.88	0.73
V. Individual Quest	1	32	57	20	0	0	0	2.87	0.71
VI. Student Socializing	0	0	42	54	7	0	1	3.52	0.77

 $^{*}$  Class interval = 0.5-1.5, midpoint of interval = 1, exact limits of interval = 0.5-1.49



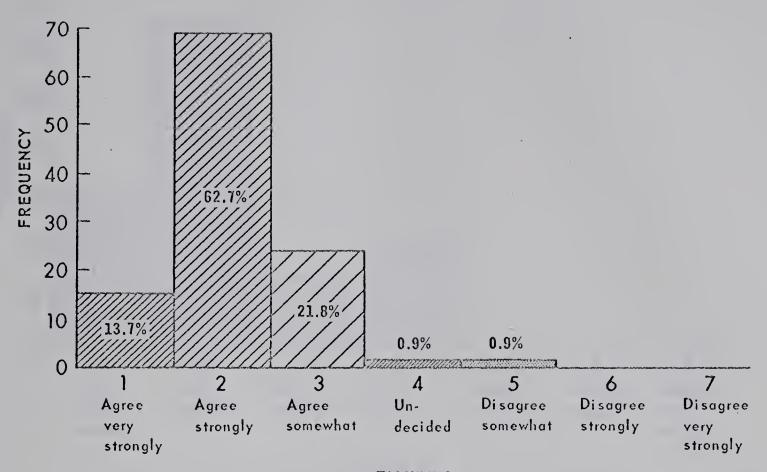


FIGURE 2: FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR ONE-STUDENT CONFORMITY

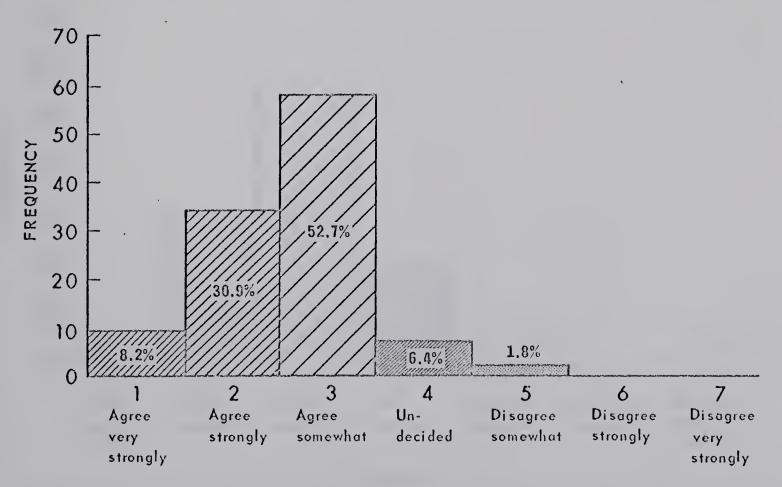


FIGURE 3: FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR TWO-STUDENT PARTICIPATION



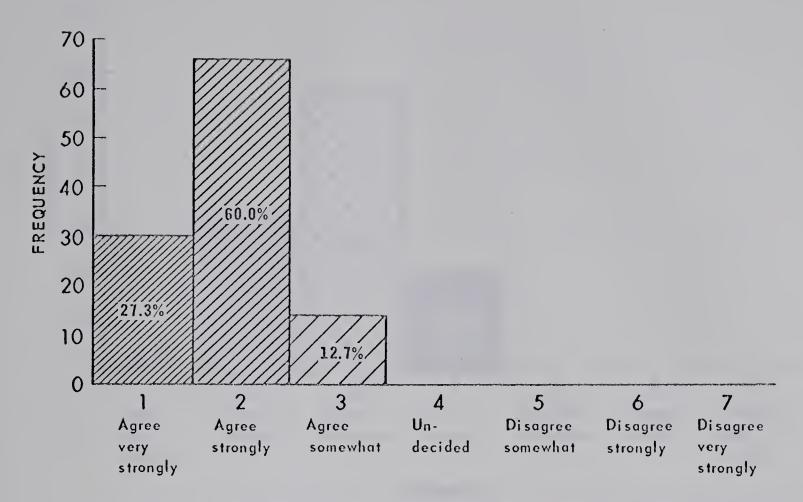


FIGURE 4: FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR THREE-STUDENT CRITICISM

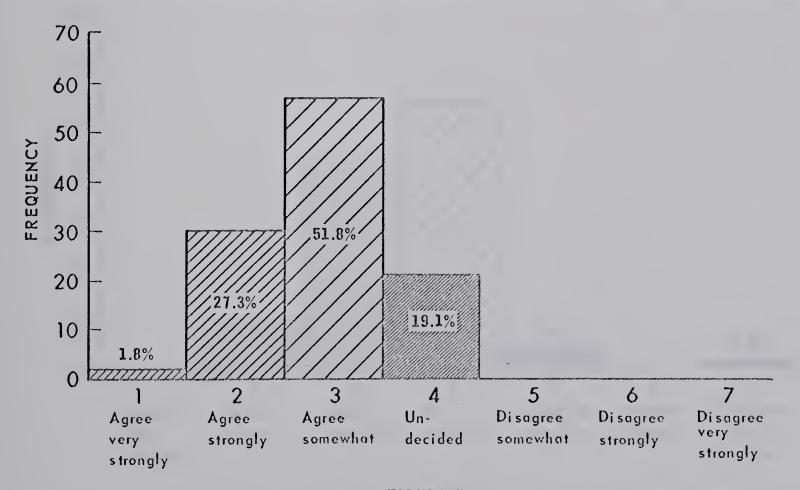


FIGURE 5:
FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR FOUR-STUDENT CHALLENGE



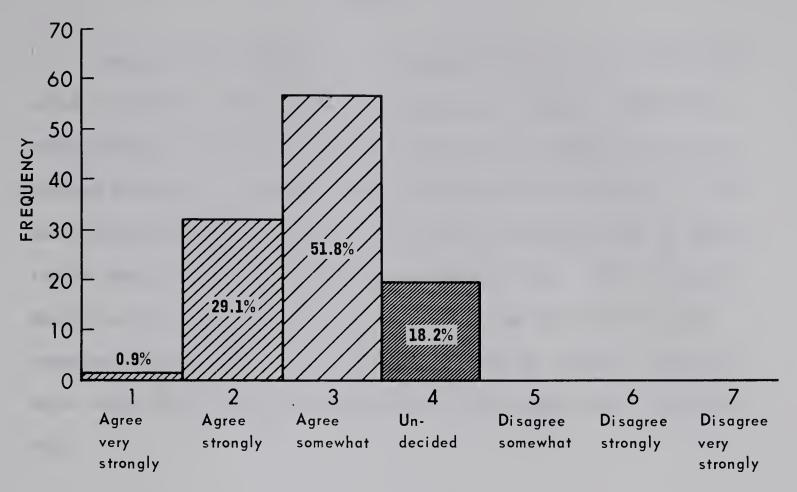


FIGURE 6: FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR FIVE-INDIVIDUAL QUEST

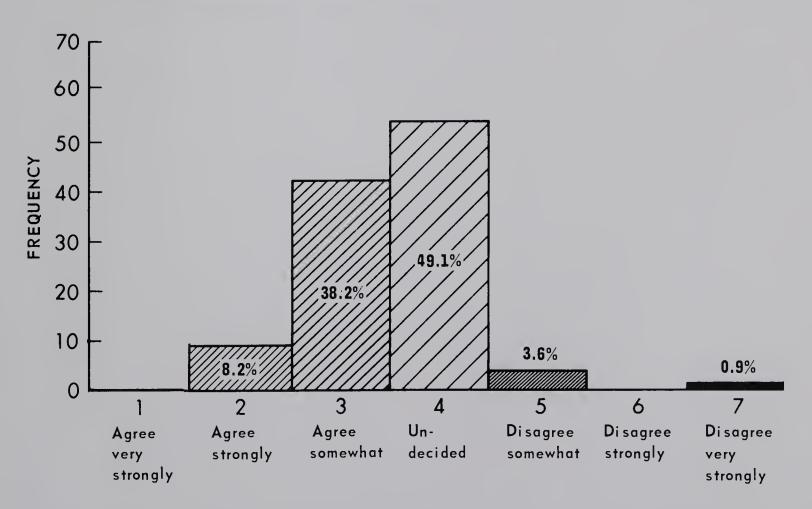
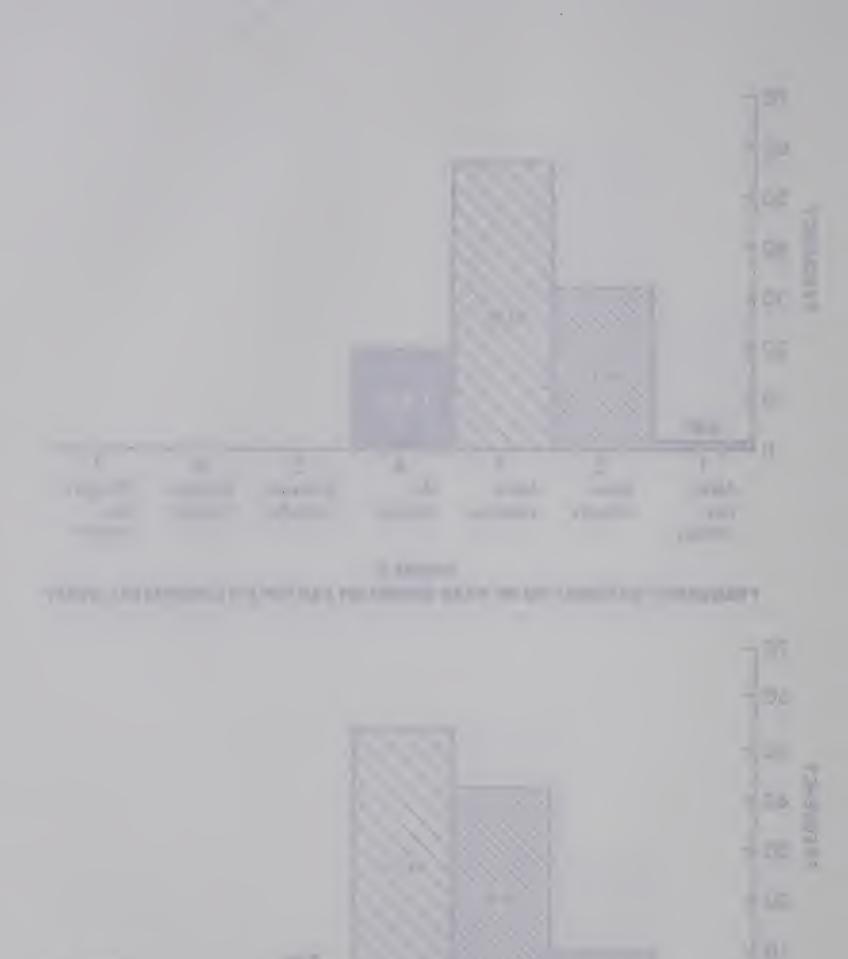


FIGURE 7:
FREQUENCY DISTRIBUTION OF MEAN SCORES ON FACTOR SIX - STUDENT SOCIALIZING



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#### SUMMARY

Using factor analysis, six meaningful factors were derived by which to describe the role of the high school student. These were named Student Conformity, Student Participation, Student Criticism, Student Challenge, Individual Quest, and Student Socializing. Each factor consisted of a variety of behaviors and represented an identifiable dimension of the high school student's role. When frequency distributions of individual mean scores for the six factors were examined, it was found that first-year education students tended to agree with these factors as dimensions of the high school student's role.



## REFERENCES FOR CHAPTER IV

- 1. Harman, H.H. Modern Factor Analysis, Chicago: University of Chicago Press, 1967.
- 2. Ferguson, G.A. <u>Statistical Analysis in Psychology and Education</u>, New York: McGraw-Hill Book Company, 1966.
- 3. Kelley, T.L. "Comment on Wilson and Worcester's 'Note on Factor Analysis'," <u>Psychometrika</u>, V:117-120, 1940.



#### CHAPTER V

# COMPARISON OF EDUCATION STUDENTS' PERCEPTIONS OF THE HIGH SCHOOL STUDENT'S ROLE

A second purpose of the study was to compare education students' perceptions of the high school student's role when the sample was divided on the basis of certain variables of the individual and the high school from which he graduated. To this end, seven null hypotheses were formulated. Individual scores for each of the six factors were normalized (Supra, p.33), and the one-way analysis of variance technique was used to test the hypotheses. The results are presented in this chapter.

<u>Hypothesis 1</u>. There is no significant difference in mean scores for the factors associated with the high school student's role between male and female first-year education students.

F ratios and probabilities for the analysis of variance tests are given in Table XI. On no factor did the probabilities reach the 0.05 criterion level. Therefore, there was no evidence to reject the null hypothesis. Male students did not differ from female students in their means scores for the six factors of the high school student's role.

Hypothesis 2. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students with different teaching level aspirations.

For the variable of teaching level aspired to, students were classified by four categories: lower elementary, upper elementary, junior high, and senior high. F ratios and probabilities on the six factors are given in Table XII. The 0.05 level criterion was not reached in any



TABLE XI

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES BETWEEN MALE AND FEMALE RESPONDENTS IN MEAN SCORES FOR THE SIX FACTORS IN THE HIGH SCHOOL STUDENT'S ROLE

Classification	N	H	Mean norma	lized scores III	normalized scores on each factor	or V	IV
Male	34	52.03	52.11	51.29	50.28	51.46	49.11
Female	92	60.64	70.67	49.43	98.64	49.36	50.42
F ratio		2.06	2.25	0.82	70.0	1.05	0.41
Probability		0.152	0.136	0.366	0.837	0.308	0.524
Significance Level		n.s.*	n.s.	. ព . ន .	n.s.	n.s.	n.s.

\* not significant

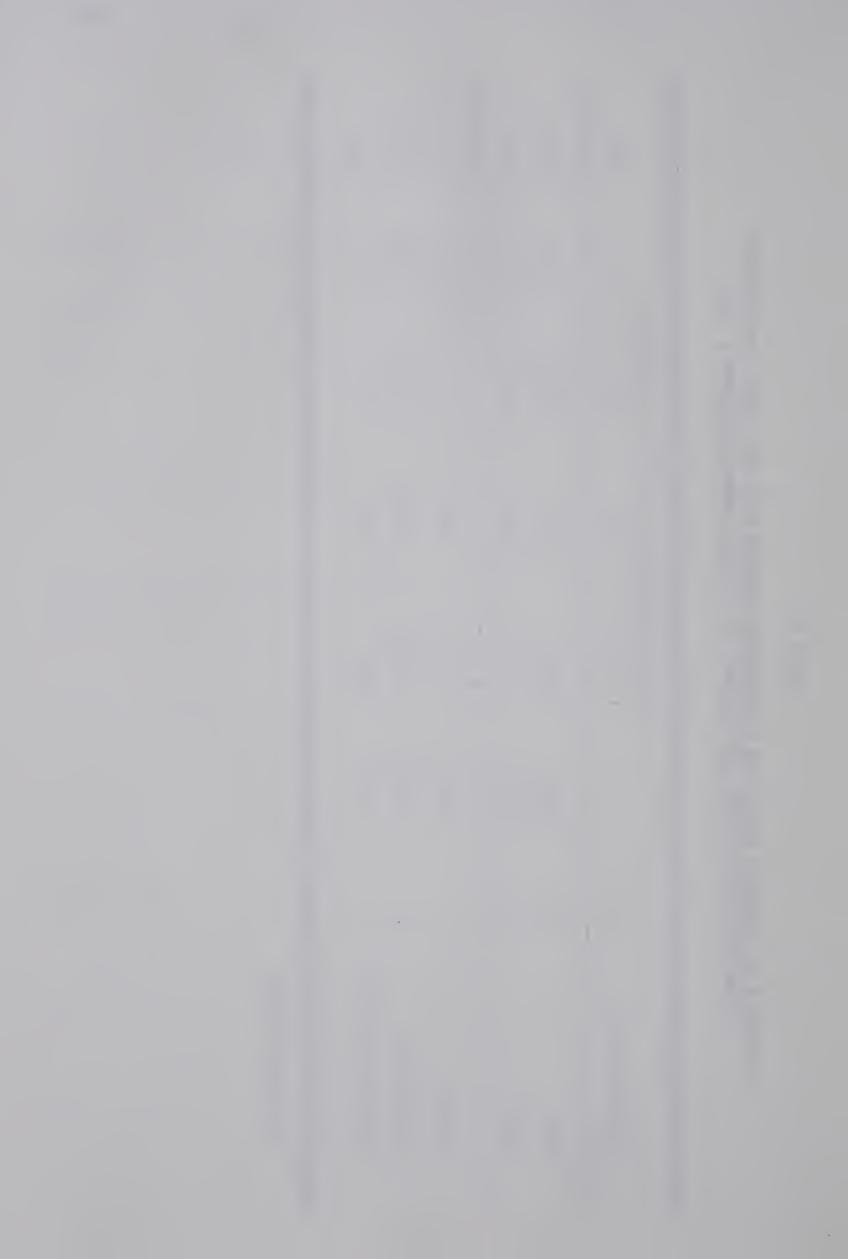


TABLE XII

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES AMONG RESPONDENTS WITH DIFFERENT TEACHING-LEVEL ASPIRATIONS IN MEAN SCORES FOR THE SIX FACTORS OF THE HIGH SCHOOL STUDENT'S ROLE

Classification  Teaching level  Lower Elementary  Upper Elementary	22 22 23	1 46.74 50.53	Mean normall II 48.57 48.94	r e	on each factor IV 50.17 49.35		VI 48.62 50.12
Senior High F Ratio Probability Significance Level	48	50.28 1.32 0.272 n.s.*	48.38 52.51 1.14 0.336 n.s.	48.32 50.14 0.40 0.752 n.s.	48.00 51.37 0.62 0.604 n.s.	47.92 51.27 0.72 0.542 n.s.	50.25 50.55 0.19 0.904 n.s.

not significant



of the probabilities. Therefore, there was no evidence to reject the null hypothesis. Education students who aspire to teach at different levels in the school system did not differ in mean scores for the six factors of the high school student's role.

Hypothesis 3. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students with different socio-economic backgrounds.

On the variable of socio-economic standing, students were classified by their score on the Gough Home Index: scores between zero and nine were rated as low, scores from ten to fifteen inclusive were rated as medium, and scores from sixteen to twenty inclusive were rated as high. F ratios and probabilities on the six factors are given in Table XIII. The 0.05 level criterion was not reached in any of the probabilities. Therefore, there was no evidence to reject the null hypothesis. Education students with different socio-economic backgrounds did not differ in mean scores for the six factors of the high school student's role.

Hypothesis 4. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students from schools differing in organizational type.

On the variable of school organizational type students were classified by schools which were high schools or colleges, junior-senior high schools, or combined schools with grades I-XII. F ratios and probabilities on the six factors are given in Table XIV. The 0.05 level criterion was not reached in any of the probabilities. Therefore, there was no evidence to reject the null hypothesis. Education students from



TABLE XIII

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES AMONG RESPONDENTS WITH DIFFERENT SOCIO-ECONOMIC BACKGROUNDS IN MEAN SCORES FOR THE SIX FACTORS OF THE HIGH SCHOOL STUDENT'S ROLE

Classification	Z	Ľ	Mean normal II	normalized scores c	on each factor IV	or V	VI
Socio-Economic Standing	ding						
Low (0-9)	27	66.65	95.64	53.07	51.22	49.72	48,45
Medium (10-15)	62	50.27	50.74	49.31	49.56	50.26	50.80
High (16-20)	21	49.22	48.33	48.15	49.68	49.65	49.71
F Ratio		0.09	67.0	1.83	0.27	0.05	0.54
Probability		0.916	0.613	0.166	0.765	0.955	0.586
Significance Level		ж.°°	n. S.	n.s.	. s. u	n.s.	n.s.

\* not significant



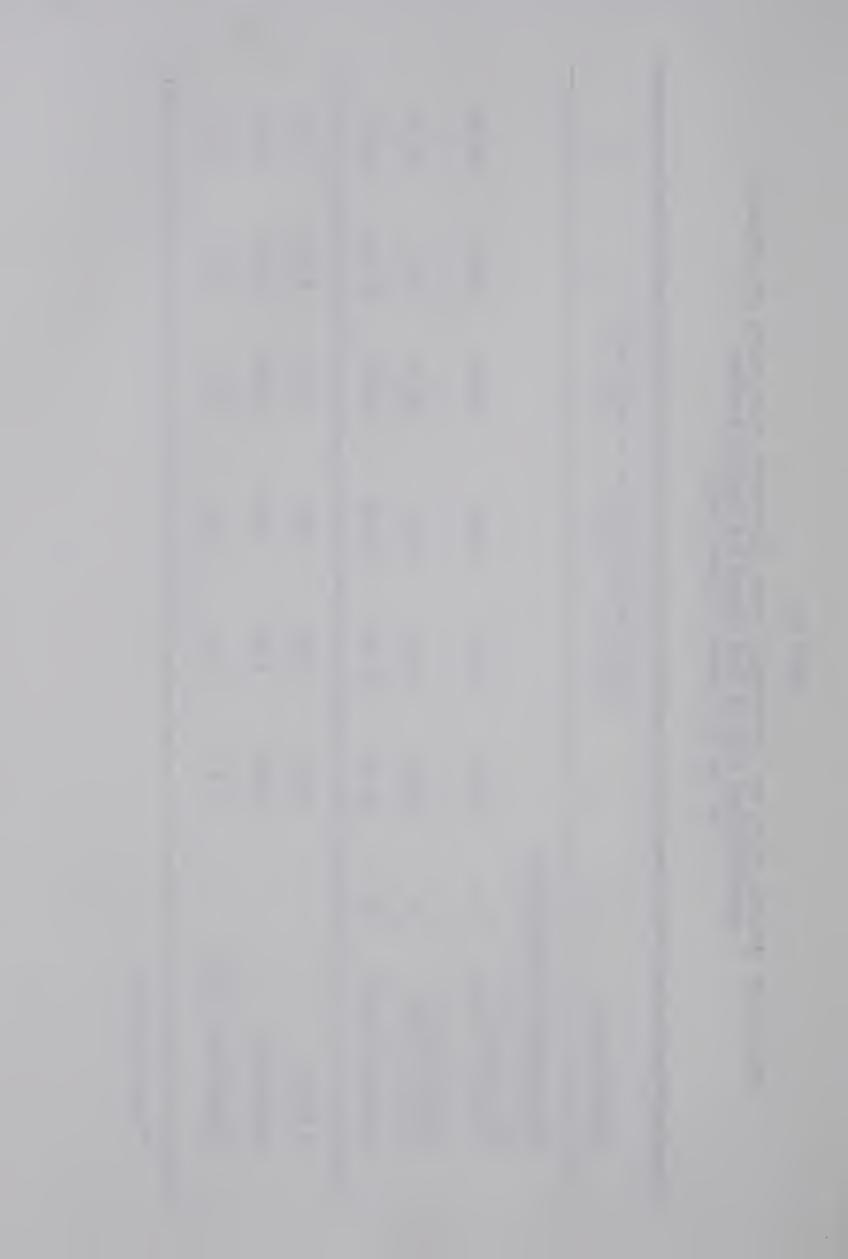
TABLE XIV

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES AMONG RESPONDENTS FROM SCHOOL OF DIFFERENT ORGANIZATIONAL TYPE IN MEAN SCORES FOR THE SIX FACTORS

OF THE HIGH SCHOOL STUDENT'S ROLE

VI		50.70	50.38	46.85	1.12	0.33	n.s.	
or V		49.78	50.31	51.39	0.25	0.78	n.s.	
n each facto		98.64	49.59	50.95	0.11	06.0	n.s.	
normalized scores on each factor III IV		49.43	49.52	52.84	0.87	0.421	n.s.	
Mean normali II		49.78	97°67	51.43	0.23	0.793	n.s.	
H		50.01	50.53	49.38	0.07	0.937	n.s.,	
Z	nization	72	20	18				
Classification	Type of School Organization	High School or College (IX-XII)	Junior-Senior High (VII-XII)	Combined (I-XII)	F Ratio	Probability	Significance Level	

\* not significant



schools of different organizational type did not differ in mean scores for the six factors of the high school student's role.

Hypothesis 5. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students from public and non-public schools.

On the variable of type of school attended, students were classified as public school or non-public (separate and private) school pupils. Fratios and probabilities on the six factors are shown in Table XV.

The 0.05 level criterion was not reached on the first five factors, and there was no evidence to reject the null hypothesis here. Education students from different types of schools did not differ in their perceptions of those factors of the high school student's role named Student Conformity, Student Participation, Student Criticism, Student Challenge, and Individual Quest.

On the sixth factor, however, the probability reached was 0.027. This figure satisfied the 0.05 level criterion for significance. Therefore, the null hypothesis was rejected in this case. Students from separate and private schools tended to favor Student Socializing to a greater extent than students from public schools.

Hypothesis 6. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students from high schools of different sizes.

On the variable of high school size, students were classified by the number of high school teachers in their school of graduation. There were five categories of schools: those with, 10 or fewer teachers, 11-20 teachers, 21-30 teachers, 31-50 teachers, and 51 or more teachers. Fratios and probabilities are given for the six factors in Table XVI.



TABLE XV

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES BETWEEN RESPONDENTS FROM PUBLIC AND NON-PUBLIC SCHOOLS IN MEAN SCORES FOR THE SIX FACTORS

OF THE HIGH SCHOOL STUDENT'S ROLE

Classification	z	Н	Mean normal	normalized scores c	on each factor IV	Λ	IA
Nature of School							
Public	80	49.62	50.36	50.12	50.78	97.09	51.28
Separate and Private	30	51.00	66.87	49.72	47.88	48.82	46.63
F Ratio		0.42	0.42	0.04	1.88	0.59	5.01
Probability		0.520	0.520	0.847	0.173	777.0	0.027
Significance Level		n.s.*	n.s.	n.s.	n.s.	n.s.	0.05

\* not significant



TABLE XVI

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES AMONG RESPONDENTS FROM HIGH SCHOOLS OF DIFFERENT SIZE IN MEAN SCORES FOR THE SIX FACTORS OF THE HIGH SCHOOL STUDENT'S ROLE

Classification	Z	Н	Mean normal	normalized scores on each factor	on each facto	r V	VI
Number of High School	hool Teachers	ωţ					
10 or fewer	25	66.67	85.65	51.41	76.87	51.19	45.75
11-20	28	48.85	51.26	52.29	53.20	51.44	48.55
21-30	20	50.13	48.77	47.15	49.10	49.59	48.90
31-50	13	53.59	53.25	49.82	48.63	50.79	55.83
51 or more	24	49.31	48.29	48.37	48.83	47.05	53.93
F Ratio		0.54	0.72	1.07	0.98	0.79	3.80
Probability		0.709	0.578	0.373	0.422	0.534	900.0
Significance Level	<del>,</del> .	n.s.	n.s.	n.s.	n.s.	n.s.	0.05**

\*\* See Table XIVa for Scheffe multiple comparison of means. \* not significant



The 0.05 level criterion was not reached on the first five factors, and there was no evidence to reject the null hypothesis for these. Education students from different sized schools did not differ in mean scores for those dimensions of the high school student's role named Student Conformity, Student Participation, Student Criticism, Student Challenge, and Individual Quest.

The probability of no difference on the sixth factor was 0.006, which more than satisfies the 0.05 level criterion. Therefore, the null hypothesis was rejected. Education students from high schools of different size differed in mean scores for factor six, Student Socializing. To illustrate where the difference occurs, the Scheffe multiple comparison of means probability matrix is given in Table XVIa.

TABLE XVIa

SCHEFFE MULTIPLE COMPARISON OF MEANS PROBABILITY MATRIX
FOR FACTOR SIX - STUDENT SOCIALIZING

Number of High S Teachers	chool					
reachers	Group	1.	2	3	4	5
10 or fewer	1	1.000	0.882	0.871	0.051*	0.062*
11 - 20	2		1.000	1.000	0.265	0.382
21 - 30	3			1.000	0.376	0.540
31 - 50	4				1.000	0.987
51 or more	5					1.000

<sup>\*</sup> Significant levels of probability

Probabilities of no difference of 0.051 and 0.062 between groups one and four and groups one and five respectively are shown. These figures



satisfy the 0.1 probability level criterion for a significant difference between groups in the Scheffe multiple comparison of means test (Supra, p.33). Education students from small high schools of ten or fewer teachers had a significantly different mean score for factor six, Student Socializing, than their colleagues from large high schools of more than thirty teachers. A comparison of the mean scores for factor six on Table XVI showed that respondents from the small high schools agreed with Student Socializing more than those from the large high schools did.

Hypothesis 7. There is no significant difference in mean scores for the factors associated with the high school student's role among first-year education students from high schools of different location.

On the variable of high school location, students were classified as coming from high schools in a rural environment, in a town, or in a city. F ratios and probabilities are given for the six factors in Table XVII. The 0.05 level criterion was not reached on the first two factors, and there was no evidence to reject the null hypothesis here. Students from high schools of different location did not differ in their mean scores for factors one and two, Student Conformity and Student Participation.

The probabilities on the remaining four factors met the 0.05 level criterion, and the null hypothesis was rejected. Education students from high schools of different location differed in mean scores for factors three to six, Student Criticism, Student Challenge, Individual Quest, and Student Socializing.

To illustrate where the differences in mean scores occur, the Scheffé multiple comparison of means probability matrices are shown in Tables XVIIa - XVIId. On Tables XVIIa - XVIIc the significant levels of



TABLE XVII

ANALYSIS OF VARIANCE TESTS FOR DIFFERENCES AMONG RESPONDENTS FROM HIGH SCHOOLS
OF DIFFERENT LOCATION IN MEAN SCORES FOR THE SIX FACTORS
OF THE HIGH SCHOOL STUDENT'S ROLE

Classification	N	H	Mean normal II	normalized scores on each factor III IV	n each facto	r. V	VI
Location of High School	hoo1						
Rural Environment	17	48.33	49.43	50.89	49.14	07.67	45.75
Town	74	49.20	51.53	52.72	52.78	53.31	49.06
City	67	51.30	48.80	47.27	47.78	47.26	52.35
F Ratio		08.0	06.0	3.75	3.12	79.7	3.30
Probability		0.452	0.410	0.027	0.048	0.012	0.041
Significance Level		n.s.*	n.s.	0.05**	0.05**	0.05**	0.05**

\*\* See Tables XVIIa - d for Scheffe multiple comparison of means not significant

\*



TABLE XVIIa

# PROBABILITY MATRIX FOR SCHEFFE MULTIPLE COMPARISON OF MEANS ON FACTOR THREE - STUDENT CRITICISM

Location of High Sch	ool Attended			
	Group	1	2	3
Rural Environment	1	1.000	0.803	0.419
Town	2		1.000	0.029*
City	3			1.000

<sup>\*</sup> Significant level of probability

TABLE XVIIb

# PROBABILITY MATRIX FOR SCHEFFE MULTIPLE COMPARISON OF MEANS ON FACTOR FOUR - STUDENT CHALLENEGE

hool Attended			
Group	1	2	3
1	1.000	0.429	0.885
2		1.000	0.052*
3			1.000
	1 2	Group 1  1 1.000 2	Group 1 2  1 1.000 0.429 2 1.000

<sup>\*</sup> Significant level of probability



TABLE XVIIc

# PROBABILITY MATRIX FOR SCHEFFE MULTIPLE COMPARISON OF MEANS ON FACTOR FIVE - INDIVIDUAL QUEST

Location of High Sch	ool Attended	1		
	Group	1	2	3
Rural Environment or Small Village	1	1.000	0.365	0.732
Town	2		1.000	0.012*
City	3			1.000

<sup>\*</sup> Significant level of probability

TABLE XVIId

# PROBABILITY MATRIX FOR SCHEFFE MULTIPLE COMPARISON OF MEANS ON FACTOR SIX - STUDENT SOCIALIZING

Location of High Sc	hool Attended			
	Group	1	2	3
Rural Environment or Small Village	1	1.000	0.491	0.057*
Town	2		1.000	0.265
City	3			1.000

<sup>\*</sup> Significant level of probability



probability occur between groups two and three, students from town schools and students from city schools. A comparison of the mean scores for factors three, four, and five, in Table XVII reveals the nature of these differences. Education students who graduated from city high schools agreed with Student Criticism, Student Challenge, and Individual Quest, to a greater extent than students from town schools did.

On factor six, Table XVIId, the significant level of probability occurs between groups one and three. The mean scores for factor six on Table XVII indicated that education students from high schools in a rural environment agreed with Student Socializing more than their colleagues in city high schools did.

## Summary of Findings

No significant differences in mean scores for the six factors of the high school student's role were found between education students classified on the basis of sex, teaching level aspired to, socio-economic standing, and type of organization in the school of graduation. Therefore, Hypotheses 1 - 4 were accepted.

Some significant differences in perceptions were found between beginning education students classified by three variables of the high school of graduation, school attended, size, and location. These differences are as follows: (1) students from private and separate schools agreed with Student Socializing more than students from public schools, (2) students from small high schools of ten or fewer teachers agreed with Student Socializing more than students from large high schools of more than thirty-one teachers, (3) students from city schools agreed with Student Criticism, Student Challenge, and Individual Quest more than



students from town high schools, and (4) students from rural schools agreed with Student Socializing more than students from city schools. Therefore, Hypotheses 5 - 7 were rejected.



#### CHAPTER VI

SUMMARY, DISCUSSION OF FINDINGS, AND IMPLICATIONS FOR RESEARCH

### Summary

The purpose of the study was to examine the perceptions or opinions of beginning education students as to the role of the high school student. A sample of 110 students at the University of Alberta, Edmonton, was chosen from fourteen sections of the Educational Administration 261 course in the Spring of 1969. Only those students who graduated from high school the previous year were included in the sample. Perceptions of the high school student's role were elicited with Bergen's The Role of the High School Student Questionnaire, a fifty-two item Likert type instrument. The items were normative statements of the high school student's behavior and attributes, and respondents were asked to indicate their relative agreement with them. Information on the respondent and the high school from which he graduated was gathered with an individual data instrument.

The problem, in operational terms, was stated in three parts:

(1) What factors could be used to describe the high school student's role?, (2) What was the pattern of responses across these factors?, and

(3) What inter-category differences in mean scores for the factors associated with the high school student's role were discernible when the sample was divided on the basis of sex, teaching level aspired to, socioeconomic standing, type of organization in the school of graduation, type of school, the size of the high school, and its location?

Conclusions. Using factor analysis, six meaningful factors were derived by which to describe the high school student's role. These were



named Student Conformity, Student Participation, Student Criticism, Student Challenge, Individual Quest, and Student Socializing. When the distributions of individual mean scores for the factors were examined, it was found that the sample agreed with the first five factors, and were undecided about the sixth. One-way analysis of variance was used to test for significant differences among the respondents. No significant differences were found when the students were compared by sex, teaching level, socio-economic standing, and type of organization in the school of graduation. The following differences in perceptions were found on the remaining variables: (1) students from private and separate schools agreed with Student Socializing more than students from public schools, (2) students from small high schools of ten or fewer teachers agreed with Student Socializing more than students from large high schools of more than thirty-one teachers, (3) students from city schools agreed with Student Criticism, Student Challenge, and Individual Quest more than students from town schools, and (4) students from rural schools agreed with Student Socializing more than students from city schools.

### Discussion of Findings

The derivation of six factors by which to describe the high school student's role represented a significant finding within the terms of this study. A concensus of agreement with these factors indicated that Student Conformity, Student Participation, Student Criticism, Student Challenge, Individual Quest, and to a lesser extent Student Socializing, were regarded by beginning education students as legitimate dimensions of the high school student's role. That the respondents should have agreed with two apparently contradictory aspects of the high school



student's role, Student Conformity and Student Challenge, was worth noting. The indication was that education students perceived the student's role in the high school to be flexible: there was a time to conform and a time to dissent.

Differences in perceptions of the high school student's role among first-year education students corresponded to differences in schools attended rather than differences among individual respondents. Lack of significant differences among students classified by sex, teaching level, and socio-economic standing, could be interpreted in two ways. Either the description of the high school student's role in the instrument was too general to discriminate between individuals on these three variables, or, the respondents had been in the University long enough to identify with the body of first-year education students and share certain values within the one reference group.

Three variables of the high school of graduation yielded significant differences on some of the factors. Students who graduated from city high schools agreed with Student Criticism, Student Challenge, and Individual Quest more than students from town schools. A reasonable inference might be that the symptoms of student activism are more likely to be present in the city schools.

Most differences among first-year education students in perceptions of the high school student's role occurred on factor six. If the respondent attended a small rural separate high school of less than ten teachers, he was more likely to agree with Student Socializing than a respondent from a large city public school of more than thirty teachers. This suggests that the social dimension of the high school student's role is more apparent in the smaller schools.



## Implications for Research

Reference has already been made to the need for refining the instrument, The Role of the High School Student (Supra, p.40). This could be done by examining the six factors derived in this study, and adding items descriptive of each to the questionnaire. Also, the instrument, or a revised version of it, should be used with different population samples to ascertain whether the factors derived provide a general description of the high school student's role, or whether they are merely specific to the sample in this study.

The study might be repeated in different faculties in the
University to discover whether there are inter-faculty differences in

perceptions of the high school student's role. Similarly, studies could
be undertaken to compare the perceptions of different groups, such as
high school students, their teachers, parents, and school administrators.

Another field of endeavor would be to use the instrument in conjunction with other instruments, such as the <u>Organizational Climate</u>

<u>Description Questionnaire</u> (OCDQ) or the <u>Leader Behavior Description</u>

Questionnaire (LBDQ), to determine if any relationship exists between the school organizational climate and perceptions of the high school student's role, or between the leader behavior of the principal and perceptions of the student's role.



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### APPENDIX A

CLASSIFICATION OF QUESTIONNAIRE ITEMS



### APPENDIX A

### CLASSIFICATION OF QUESTIONNAIRE ITEMS

### Rules and Regulations

- To conform to institutional rules and regulations
- To be prepared to suffer the disciplinary consequences of his actions
- To attend all classes regularly
- To conform to rules and regulations governing dress
- To be well-mannered
- To be well-groomed
- To have freedom to move in buildings
- To feel free to criticize a specific institutional policy at home
- To feel free to criticize a specific institutional policy openly
- To observe only minimal compliance with rules and regulations
- To feel free to boycott classes
- To evade institutional rules and regulations

### Teacher-Student Relations

- To address his instructors with respect
- To try to be accepted by staff
- To try to get along with his instructors
- To feel free to challenge an instructor's statements
- To feel free to question an instructor's evaluation of his performance
- To feel free to challenge a staff member's interpretation of a rule
- To participate in the evaluation of the effectiveness of staff
- To call staff members by their first names
- To participate in extra-curricular activities with staff members

### Curriculum

- To be hard-working
- To try to get good marks
- To take detailed notes in class
- To memorize facts
- To spend substantial time studying course materials
- To be inquisitive
- To be open-minded
- To be allowed to complete his courses in less than the allotted time
- To be allowed to make use of the laboratory for individual science projects
- To be allowed to make use of the school library for study after hours
- To be allowed to hold informal seminars on critical issues
- To participate in planning the content of a course
- To have freedom of choice of courses he wishes to study



### APPENDIX A (Continued)

### Peer-Group Relations

- To be an example to other students
- To try to be accepted by his peer-group
- To take an active part in student activities
- To expect to be disciplined by his peer-group
- To have complete freedom of expression in the student paper
- To feel free to criticize a specific institutional policy when with his student group
- To be politically involved
- To demonstrate on issues
- To feel free to challenge existing values
- To feel free to experiment with LSC and other drugs

### Student Participation

- To cooperate with the administration
- To be represented in planning the calendar of activities
- To participate in planning the content of a course
- To be represented in setting up rules and regulations
- To have representation at staff meetings
- To have a voice in the methods used in evaluating his performance
- To be represented in the selection of staff
- To be represented in decisions regarding the expulsion of students
- To have representation at board meetings



# APPENDIX B

THE ROLE OF THE HIGH SCHOOL STUDENT

(Perception of the Respondent)



#### APPENDIX B

### THE ROLE OF THE HIGH SCHOOL STUDENT

(Perception of the Respondent)

The purpose of this questionnaire is to discover what <u>you</u> think the <u>role</u> of the HIGH SCHOOL STUDENT <u>ought</u> to be.

For each of the statements in the following three pages indicate how you feel -- that is, what you think ought to be.

Respond by <u>circling</u> the number which corresponds to the following key:

- 1. agree very strongly
- 2. agree strongly
- 3. agree somewhat
- 4. undecided
- 5. disagree somewhat
- 6. disagree strongly
- 7. disagree very strongly

### Example:

The HIGH SCHOOL STUDENT ought to have the freedom to wear the hair style of his choice  $1 \ 2 \ 3 \ 4 \ (5) \ 6 \ 7$ 

If you have <u>circled</u> the number 5, you have indicated that you <u>disagree somewhat</u> with the statement.



- 2. agree strongly
- agree somewhat
   undecided
- 5. disagree somewhat
- 6. disagree strongly
- disagree very strongly 7.

# You think or feel that the HIGH SCHOOL STUDENT ought:

1.	to attend all classes regularly	1	2	3	4	5	6	7
2.	to spend substantial time studying course materials	1	2	3	4	5	6	7
3.	to conform to rules and regulations governing dress	1	2	3	4	5	6	7
4.	to try to get good marks	1	2	3	4	5	6	7
5.	to feel free to challenge an instructor's statements	1	2	3	4	5	6	7
6.	to expect to be disciplined by his peer group	1	2	3	4	5	6	7
7.	to have freedom to experiment with LSD or other drugs	1	2	3	4	5	6	7
8.	to participate in the evaluation of the effectiveness of staff	1	2	3	4	5	6	7
9.	to be inquisitive	1	2	3	4	5	6	7
10.	to feel free to criticize a specific institutional policy at home with his family	1	2	3	4	5	6	7
11.	to feel free to criticize a specific institutional policy when with his student group	1	2	3	4	5	6	7
12.	to have representation at board meetings	1	2	3	4	5	6	7
13.	to have freedom of choice of courses he wishes to study	1	2	3	4	5	6	7
14.	to have freedom of expression in the student paper	1	2	3	4	5	6	7
15.	to try to be accepted by the staff	1	2	3	4	5	6	7



- 2. agree strongly
- 3. agree somewhat
- 4. undecided
- 5. disagree somewhat
- 6. disagree strongly
- 7. disagree very strongly

# You think or feel that the HIGH SCHOOL STUDENT ought:

16.	to be represented in setting up rules and regulations	1	2	3	4	5	6	7
17.	to take detailed notes in class	1	2	3	4	5	6	7
18.	to feel free to boycott classes	1	2	3	4	5	6	7
19.	to feel free to challenge existing values	1	2	3	4	5	6	7
20.	to participate in planning the content of a course	1	2	3	4	5	6	7
21.	to be represented in the selection of staff	1	2	3	4	5	6	7
22.	to try to be accepted by his peer group	1	2	3	4	5	6	7
23.	to take an active part in student activities	1	2	3	4	5	6	7
24.	to evade institutional rules and regulations	1	2	3	4	5	6	7
25.	to be open-minded	1	2	3	4	5	6	7
26.	to conform to rules and regulations	1	2	3	4	5	6	7
27.	to memorize facts	1	2	3	4	5	6	7
28.	to be an example to other students	1	2	3	4	5	6	7
29.	to be hard-working	1	2	3	4	5	6	7
30.	to feel free to challenge a staff member's interpretation of a rule	1	2	3	4	5	6	7
31.	to be well-mannered						6	
32.	to feel free to question an instructor's	-	_	J	·			•
J	evaluation of his performance	1	2	3	4	5	6	7
33.	to have freedom to move in buildings	1	2	3	4	5	6	7
34.	to have a voice in determining the methods used in assessing his performance	1	2	3	4	5	6	7



- 2. agree strongly
- 3. agree somewhat
- 4. undecided
- 5. disagree somewhat
- 6. disagree strongly
- 7. disagree very strongly

# You think or feel that the HIGH SCHOOL STUDENT ought:

35.	to be politically involved	1	2	3	4	5	6	7
36.	to be well-groomed	1	2	3	4	5	6	7
37.	to have representation at staff meetings	1	2	3	4	5	6	7
38.	to demonstrate on issues	1	2	3	4	5	6	7
39.	to observe only minimal compliance with rules and regulations	1	2	3	4	5	6	7
40.	to feel free to call staff members by their first names	1	2	3	4	5	6	7
41.	to try to get along with his instructors	1	2	3	4	5	6	7
42.	to cooperate with the administration	1	2	3	4	5	6	7
43.	to address his instructors with respect	1	2	3	4	5	6	7
44.	to feel free to criticize a specific institutional policy openly	1	2	3	4	5	6	7
45.	to be represented in planning the calendar of activities	1	2	3	4	5	6	7
46.	to be allowed to make use of the laboratory for individual science projects	1	2	3	4	5	6	7
47.	to be allowed to make use of the school library for study after hours	1	2	3	4	5	6	7
48.	to be allowed to hold informal seminars on critical issues	1	2	3	4	5	6	7
49.	to participate in extra-curricular activities with staff members	1	2	3	4	5	6	7
50.	to be represented in decisions regarding the expulsion of students	1	2	3	4	5	6	7
51.	to be allowed to complete his courses in less than the allotted time	1	2	3	4	5	6	7



- 2. agree strongly
- 3. agree somewhat
- 4. undecided
- 5. disagree somewhat
- 6. disagree strongly
- 7. disagree very strongly

You think or feel that the HIGH SCHOOL STUDENT ought:

52. to be prepared to suffer disciplinary consequences resulting from his actions 1 2 3 4 5 6 7



# APPENDIX C

INDIVIDUAL DATA QUESTIONNAIRE



### APPENDIX C

# INDIVIDUAL DATA QUESTIONNAIRE

(Place an "X" into appropriate blanks)

70.	Sex (1) Male; (2) Female	
71.	Age: (1) 16-17; (2) 18-19; (3) 20-21 (4) 26-30; (5) 26-30; (6) 31 and above	
72.	What were you doing last year?	
	<pre>(1) attending high school (2) registered in the Faculty of Education (3) registered in a faculty other than the Faculty of Educati (4) earning a wage or salary (5) other</pre>	. 01
73.	Check the <u>one</u> type of school organization which most closely describes the one in which you took grade XII.	
	(1) high school only (grades 9-12 or 10-12) (2) junior-senior high school (grades 7-12 or 8-12) (3) elementary-high-school (grades 1-12) (4) college (grades 11 or 12 and higher) (5) other	
74.	Check the <u>one</u> item which most closely describes the nature of the school or of the school district in which you took Grade XII.	
	<pre>(1)         public school (non-catholic) (2)         public school (catholic) (3)         catholic separate school (4)         protestant separate school (5)         private school or denominational college</pre>	
75.	About how many <u>high school</u> teachers were there in the school in which you took grade XII?	
	(1) 10 or fewer (4) 31-50 (2) 11 to 20 (5) 51-100 (3) 21 to 30 (6) more than 100 teachers	
76.	The school in which you took grade XII was located:	
	<ul> <li>(1) in a rural environment or small village</li> <li>(2) in a town</li> <li>(3) in a small city (Red Deer, etc.)</li> <li>(4) in a large city (Edmonton, Calgary, or their equivalents)</li> </ul>	
77	Unon monoining room to coline contificate	

77. Upon receiving your teaching certificate, you would prefer to begin by teaching in:



(1)	1ower	elementary	classes	(3)	junior	high	classes
		elementary	classes	(4)	senior	high	classes

Respond to the following in terms of the conditions as they were when you were in Grade XII.

In the following questions, mark your answer by putting a CIRCLE in the right place. For example, in the question, "Does your family own a car?" draw a circle around YES if your family has a car, and around NO if your family hasn't a car. Be sure to answer all questions.

1.	Does your family own a car?	Α.	Yes	В.	No
2.	Does your family have a garage or carport?	Α.	Yes	В.	No
3.	Did your father go to high school?	Α.	Yes	В.	No
	Did your mother go to high school?			В.	No
	Did your father go to university?			В.	No
6.	Did your mother go to university?	Α.	Yes	В.	No
7.	Is there a writing desk in your home?	Α.	Yes	В.	No
8.	Does your family have a hi-fi record player?.	Α.	Yes	В.	No
9.	Does your family get a daily newspaper?	Α.	Yes	В.	No
10.	Does your family own a piano?	Α.	Yes	В.	No
11.	Do you have your own room at home?	Α.	Yes	В.	No
12.	Does your family own its own home?	Α.	Yes	В.	No
13.	Is there an encyclopedia in your home?	Α.	Yes	В.	No
14.	Does your family have more than 100 hard				
	covered books? (e.g. 4 shelves 3 feet long)	Α.	Yes	В.	No
15.	Did your parents borrow any books from				
	the library last year?	Α.	Yes	В.	No
16.	Does your family leave town each year for				
	a holiday?	Α.	Yes	В.	No
17.	Do you belong to any club where you have				
	to pay fees?	Α.	Yes	В.	No
18.	Does your mother belong to any clubs or				
	organizations such as study, church, art,				
	or social clubs?	Α.	Yes	В.	No
19.	Does your family own a color T.V. set?	Α.	Yes	В.	No
20.	Have you ever had lessons in music, dancing,				
	art, swimming, etc., outside of school?	Α.	Yes	В.	No





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